

Government Funding Opportunities for Stormwater Management in Santa Fe



Prepared for the City of Santa Fe through technical assistance from the
U.S. Environmental Protection Agency, Office of Wastewater Management





PREFACE

Long-term stormwater planning promotes effective stormwater management while also supporting a community's broader vision and goals, such as flooding reduction, increased neighborhood aesthetics, improved recreational opportunities through water quality improvement, and public health protection. Long-term stormwater planning can also support a community's resilience, economic growth, infrastructure improvement, environmental compliance and overall quality of life. Establishing a vision and a well-constructed plan for accomplishing stormwater program goals can also help open the door to new sources of funding by strategically identifying long-term community goals and better aligning activities with a comprehensive water resource management focus. Communities may be able to save money and find multiple benefits by looking comprehensively at multiple long-term planning efforts to incorporate stormwater early into planned projects.

Santa Fe, New Mexico, is one of four communities that participated in a U.S. Environmental Protection Agency (EPA) voluntary technical assistance effort to improve long-term stormwater planning. These communities worked with EPA to explore ways to leverage planned and future activities with long-term stormwater planning using the general process outlined in EPA's draft *Community Solutions for Stormwater Management: A Guide for Voluntary Long-Term Planning*.

Often, stormwater is dealt with in a reactive way. Problems are fixed when they arise, with little thought to long-term solutions that will keep them from happening again. More forward-looking solutions are not identified and implemented. Santa Fe participated in this long-term stormwater planning effort to proactively seek ways to save money and improve the community and its waters. With this new approach, Santa Fe is committing to long-term, real improvements for Santa Feans that are based on the community's identified needs, wants and vision.

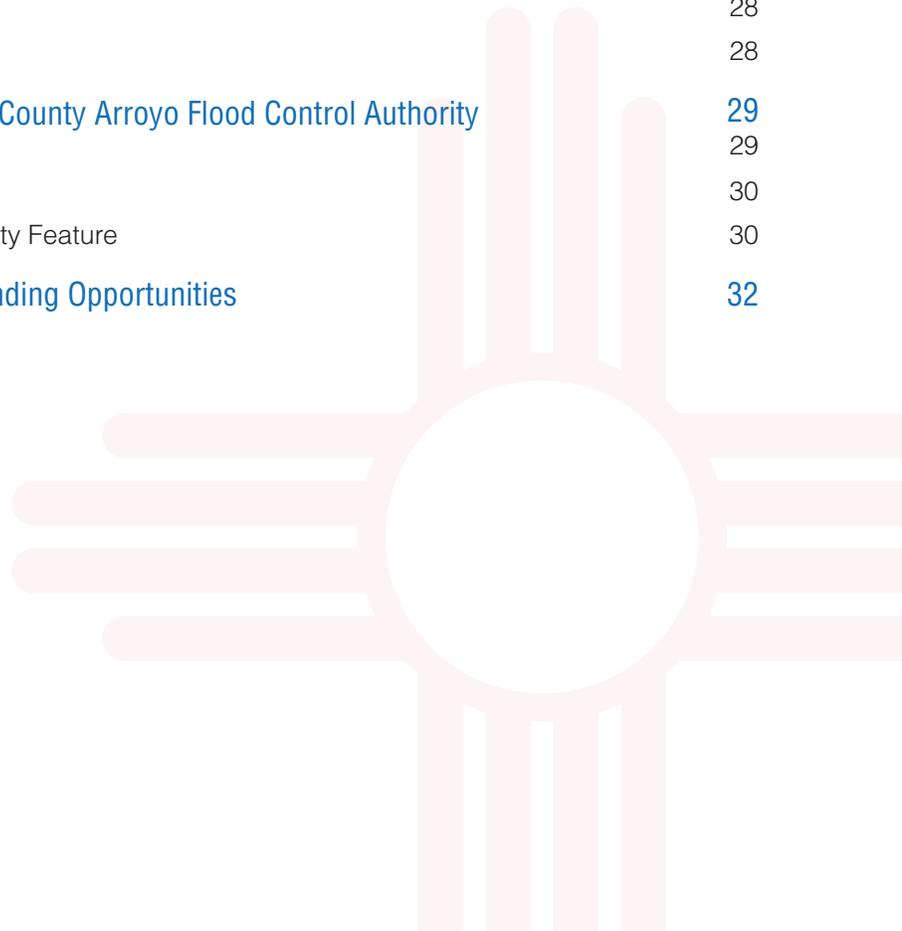
Through the technical assistance effort, the city and EPA worked together to identify and address several of the city's long-term stormwater goals, including developing a guidebook for design and implementing green infrastructure on roadway projects as well as information on pursuing government funding opportunities.





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ABBREVIATIONS, ACRONYMS, AND SYMBOLS

BMP	Best Management Practice	NPDES	National Pollutant Discharge Elimination System
BUILD	Better Utilizing Investments To Leverage Development	PAS	Planning Assistance To States
CDBG	Community Development Block Grant	PDM	Pre-Disaster Mitigation Grant Program
CDBG-DR	Community Development Block Grant—Disaster Recovery	PISCES	Performance And Innovation In The SRF Creating Environmental Success
CMAQ	Congestion Mitigation And Air Quality Improvement Program	POTW	Publicly Owned Treatment Works
CPB	Construction Programs Bureau	RFP	Request For Proposals
CWSRF	Clean Water State Revolving Fund	RTCA	Rivers, Trails and Conservation Assistance
DWSRF	Drinking Water State Revolving Fund	SAP	Special Appropriations Program
EPA	U.S. Environmental Protection Agency	SSCAFCA	Southern Sandoval County Arroyo Flood Control Authority
FEMA	Federal Emergency Management Agency	SSFC	Sustainable Santa Fe Commission
FHWA	Federal Highway Administration	STBG	Surface Transportation Block Grant
FMA	Flood Mitigation Assistance	SWQB	Surface Water Quality Bureau
FTA	Federal Transit Administration	TAP	Transportation Alternatives Program
GPR	Green Project Reserve	TIGER	Transportation Investment Generating Economic Recovery
HGMP	Hazard Mitigation Grant Program	TIP	Transportation Improvement Program
HNA	Hazard Mitigation Assistance	TMDL	Total Maximum Daily Load
HSIP	Highway Safety Improvement Program	UCF	Urban And Community Forestry
HUD	U.S. Department Of Housing And Urban Development	USDOT	U.S. Department Of Transportation
LID	Low-impact Development	UWGS	Urban Waters Small Grants Program
MPO	Metropolitan Planning Organization	WBP	Watershed-based Plan
MS4	Municipal Separate Storm Sewer System	WEP	Water And Environmental Programs
MTP	Metropolitan Transportation Plan	WIFIA	Water Infrastructure Finance And Innovation Act
NFIP	National Flood Insurance Program	WIP	Weatherization And Intergovernmental Program
NHPP	National Highway Performance Program	WPF	Water Project Fund
NMDOT	New Mexico Department Of Transportation	WTB	Water Trust Board
NMED	New Mexico Environment Department		
NMFA	New Mexico Finance Authority		



INTRODUCTION

In December 2016, EPA and the City of Santa Fe began working together on an effort to determine and plan the city's long-term stormwater priorities and goals. This process included a series of meetings and conversations with city staff as well as external stakeholders to get input early on in the process that helped shape the vision of this effort. In September 2017, a core group of stakeholders consisting of EPA, City of Santa Fe municipal staff and contractors, and the New Mexico Environment Department (NMED) met to discuss objectives and priorities for the city's long-term stormwater planning effort. Participants engaged in site visits and a tour that highlighted Santa Fe's stormwater challenges and opportunities. The city and EPA also hosted a public forum where members of the community were invited to provide input to shape Santa Fe's long-term stormwater planning goals. An additional meeting was held with representatives from various city departments to discuss Santa Fe's stormwater-related challenges, discuss a long-term stormwater vision, and begin developing long-term goals.



September 2017 public forum participants.

Source: PG Environmental

Through this stakeholder engagement—a continuous process—residents and employees of the city expressed that all water in Santa Fe needs to be treated as a resource and the lifeblood of the community. There was a strong desire for increased stormwater capture and infiltration to maximize water table replenishment and an emphasis on low-impact development (LID), green infrastructure, and other stormwater controls that reduce the impacts of stormwater on the environment and public safety.

Santa Fe identified several long-term stormwater planning goals:

Generate **reliable funding** dedicated to the city's stormwater program.

Incorporate **low-impact development and green infrastructure** concepts into new development and redevelopment policies for public and private projects.

Align stormwater efforts with the city's broader functions and responsibilities, including sustainability goals and targets.



Effectively **plan, construct, and maintain stormwater assets** over the long term to enhance opportunities to seamlessly incorporate stormwater into city projects.

Define the stormwater **program structure and organizational hierarchy**.

Continue **regional planning** efforts with Santa Fe County and the New Mexico Department of Transportation relevant to the City's National Pollutant Discharge Elimination System (NPDES) - Municipal Separate Storm Sewer System (MS4) permit.

In the fall of 2017, Santa Fe began developing and pursuing its long-term stormwater planning goals by conducting an in-depth evaluation of the city's stormwater program organization and resources. The process also included outreach to gain insight from the public and other stakeholders. The results of this effort are incorporated into Santa Fe's *Stormwater Management Strategic Plan*.¹ This document was developed to complement the city's strategic plan, and describes specific information related to the city's first goal: generating reliable funding dedicated to the city's stormwater program.

A sustainable stormwater program requires staff, financial resources, and an in-depth understanding of the true costs of providing services. Additionally, communities including Santa Fe need to plan for and finance capital improvements and other priority projects to benefit the community and provide essential services. Common funding options, such as a stormwater fee, include dedicated revenue sources and outside financing (e.g., grants, loans). One of Santa Fe's long-term stormwater planning goals is to establish sustainable financing for its stormwater program and long-term priorities.

EPA worked with the city to develop this complementary document to help identify potentially relevant government funding in the form of grants or loans for stormwater projects and priorities in Santa Fe.

What's in This Document?

This document focuses on federal funding opportunities for projects and improvements that incorporate stormwater management strategies, such as green infrastructure and LID. It is also designed as a resource the city can use in identifying existing programs, plans and projects that would align well with stormwater management priorities. This holistic approach can make Santa Fe eligible for more funding opportunities by using stormwater management to fulfill key funding program criteria as part of larger projects (e.g., transportation or other broad-scope community improvements). This document provides information on the following topics:

- Integrating stormwater management into existing city planning efforts (Section 1).
- Leveraging strategic partnerships (Section 2).
- Identifying funding opportunities (Section 3).
- Learning from past experience (Section 4).
- Analyzing case studies:
 - Santa Fe Metropolitan Planning Organization (MPO) (Appendix A).
 - Southern Sandoval County Arroyo Flood Control Authority (Appendix B).
 - Potential federal funding opportunities (Appendix C).

This document can be shared with city department supervisors and decision-makers, as well as key external stakeholders, to demonstrate the advantage of pursuing stormwater management projects to improve public infrastructure, the environment and overall quality of life for the residents of Santa Fe.

¹ https://www.santafenm.gov/document_center/document/9530.



1. INTEGRATE STORMWATER MANAGEMENT INTO EXISTING CITY PLANNING EFFORTS

To set itself up for success in obtaining project funding from outside sources, the city should integrate stormwater management into its current community and infrastructure planning. Stormwater management by itself may not be the central focus of, or meet all the qualifying criteria for, certain grant and loan programs. However, applicants can often still qualify for funding by strategically incorporating stormwater components into the scope of broader projects such as transportation and safety improvements, hazard mitigation, or community and quality of life enhancements. Projects that contribute to master planning efforts and larger-scale community improvements may receive higher consideration and ranking when applying for government grants and loans. Also, having challenges and potential solutions identified and documented in other existing documents can help show that the community is engaged and dedicated to fixing problems that arise.

- Consider taking several key actions to encourage local planners and developers to incorporate stormwater management practices into projects, thus increasing the likelihood of receiving outside funding.
- Ensure that local ordinances and design standards support stormwater management practices, including green infrastructure/LID.



The Santa Fe Railyard was a collaborative city project with several stormwater management features.

Source: PG Environmental

“Stormwater projects work best when communities think about stormwater early in the design phase rather than later after homes and businesses are built. And the most successful plans start with a vision for the community forged by a collaborative process.”

—Long-Term Stormwater Plans: Community Solutions for Clean Water and a Greener Future (EPA, 2017b)

- Increase interdepartmental communication related to project planning and identify opportunities to collaborate.
- Include stormwater management priorities in capital improvement planning.
- Educate local decision-makers and the local design community about the city's stormwater management priorities and the benefits of implementing these types of projects.

In Santa Fe, stakeholders specifically highlighted interdepartmental coordination and cooperation as an area for improvement. Decision-makers who do not typically work with stormwater management planning can benefit from education on the benefits and applicability of stormwater management in project design. Incorporating stormwater management into projects as a component—instead of a stand-alone piece—can often save limited public funding. Stormwater practices can also add value to projects and help secure funding from outside sources. Planners and engineers who do not specialize in stormwater design may overlook, or not be as aware of, the social and economic benefits that various stormwater management approaches can bring to a project and ultimately the community. Coordinated engagement and outreach, both within the city and to external partners, will increase the extent to which stormwater management practices are incorporated into project design, which will in turn create a larger pool of projects to choose from when pursuing funding.

“Over 20,000 acre-feet of rain water falls within Santa Fe city limits during a typical year. That is more than the average annual usage for all urban use in the city. This runoff can be used to support plants and trees, reduce potable water demand and recharge the overtaxed ground water supplies. Uncontrolled runoff causes erosion and causes maintenance problems in the millions of dollars.”

—Land Use & Urban Design Plan (City of Santa Fe, 2017b)

“The City’s efforts to improve stormwater management provides an opportunity to capture water for park landscapes and to incorporate Low-Impact-Development (LID), measure water use and look for efficiencies.”

—Open Space, Trails & Recreation Master Plan, 2017 (City of Santa Fe, 2017c)

The City of Santa Fe is currently engaged in many long-term and master planning efforts across several departments. Some of these efforts could be leveraged to promote the use of stormwater management practices in the city and to obtain external funding to do so. City departments such as Land Use (see City of Santa Fe, 2017b) and Parks & Recreation (see City of Santa Fe, 2017c) are adept at long-term planning and have already recognized the importance of responsible stormwater management. Other departments, such as Public Works and Transportation, have a long history of working with federal and state programs to fund infrastructure projects. Staff in each of these departments provide unique perspectives and knowledge in their fields. This is an opportunity to partner and coordinate, and could represent new potential avenues for project funding.

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Transportation projects can be a promising mechanism for pursuing government grants and loans, as managing runoff from impervious roadways is necessary for flood control and safety, and new facility projects typically include some consideration for drainage improvements (quantity or quality). Further, green infrastructure and LID designs that incorporate natural and native vegetation can improve the aesthetics of new streetscapes, attracting pedestrians and businesses. By communicating and aligning stormwater management priorities with bigger-picture city planning, Santa Fe can improve its odds of securing external funding.



2. LEVERAGE STRATEGIC PARTNERSHIPS

Obtaining funding through state or federal programs often requires the coordination and cooperation of multiple entities (either within a municipal organization or with regional, state, or federal partners). The city should give careful thought as to which entity will take the lead for a particular opportunity and which others can provide added value, support, and input to increase the odds of success.

In many cases, the city will be pursuing funding for its own local projects and working between multiple city departments. However, certain funding programs may target specific types of groups, such as watershed and regional planning organizations or state agencies. In these cases, the city could become a partner on a team of applicants or work to integrate city projects, goals, and priorities into region- or state-level planning. Routine communication between all parties can help leverage opportunities as they become available.

State Partners and Opportunities

For projects that are regionally significant and have broad watershed impacts, the state can be a direct partner in planning and execution. It can also act as an advocate to help the city launch and fund significant local projects. The state may also serve as the source, distributor, or overseer of funding from federal programs.

The city will likely find itself engaging NMED often, as it relates to stormwater management projects and funding. Funding, resources, and partnerships can also come from other entities, such as the State Water Trust Board and the New Mexico Department of Transportation (NMDOT). In many cases state and federal funding for transportation projects can be accessed through the Santa Fe Metropolitan Planning Organization (see ““Regional and Local Partners and Resources.””).

NMED Construction Programs Bureau (CPB)²

NMED is responsible for overseeing the state’s water resources and management activities, including drinking water, wastewater, ground water, and surface water and related infrastructure assets. Stormwater management falls under NMED’s Surface Water Quality Bureau (SWQB), Point Source Regulation Section. NMED’s CPB provides water and wastewater project funding assistance in the form of grants and loans, most notably the Clean Water State Revolving Fund (CWSRF) and Capital Outlay Special Appropriations

² NMED CPB website: <https://www.env.nm.gov/construction-programs/>.

Program. Further, CPB provides in-person technical support and guidance related to the funding programs it sponsors, as well as during the construction and implementation process. The CPB website includes templates and guidance to help local communities pursue funding programs.

NMED's Capital Outlay Special Appropriations Program (SAP) has been supporting environmental infrastructure projects (including stormwater improvements) since 1973 through the sale of severance tax bonds. As of the end of 2017, the state was actively overseeing 154 SAP projects with a total outstanding balance of more than \$25 million. Eligible communities (e.g., municipalities, counties, special districts, Indian Tribes, Mutual Domestic Water Consumers Associations) can apply for funding through their legislative representative.

New Mexico State Water Trust Board (Water Project Fund)³

The New Mexico Finance Authority (NMFA) was established to provide a low-cost financing mechanism for city, county, and select state infrastructure projects. New Mexico's 2001 Water Project Finance Act specifically charged NMFA with administering a Water Project Fund (WPF) and a Water Trust Board (WTB) to oversee it. WPF assistance was established to support five types of projects:

- Water conservation or recycling, treatment, or water use.
- Flood prevention.
- Endangered Species Act collaborative projects.
- Water storage, conveyance, or delivery.
- Watershed restoration and management.

Funding selections are made annually; any interested party must submit a Notice of Intent and then complete a formal application. Submissions are screened for completeness and eligibility and evaluated against WTB's criteria, including local contribution, regional nature of projects, leveraging of funds, contribution to water quality/watershed improvement, and attention to human health and safety. The 16-member board is responsible for making funding recommendations to the state legislature.

“Watershed health is a public health and safety issue and watershed restoration encompasses a suite of activities from forest thinning to riparian restoration projects to consideration of soil and substrate conditions. Projects that address long-term maintenance and overarching watershed restoration will be considered. Projects solely intended to monitor the efficacy of watershed restoration and maintenance are considered eligible for funding as long as it is part of a written long-term maintenance plan.”

—Project Management Policies (WTB WPF, 2016)

WTB primarily recommends awards in loan/grant combinations, and all projects must provide a local match. About \$21.7 million in project funding was available in the 2018 cycle.

³ New Mexico State WTB WPF website: <https://www.nmfa.net/financing/water-programs/water-project-fund/>.

Regional and Local Partners and Resources

Many areas have organizations that facilitate planning and coordination across municipalities and interested parties in a particular geographic region, such as cities, tribes, and counties. These groups can take various forms, such as watershed groups (e.g., the Santa Fe Watershed Association⁴) or regional transportation planning organizations, and are often important resources. In some cases, they may even provide funding or access to funding.

Santa Fe Metropolitan Planning Organization (MPO)

Santa Fe is a member of the Santa Fe MPO. The purpose of the MPO is to create a forum for transportation decision-making in the Santa Fe metropolitan planning area. The MPO planning area encompasses approximately 25% of Santa Fe County's land area, 80% of its population, and 90% of its employment (Santa Fe MPO, n.d.). It has a direct relationship with and receives funding from NMDOT, the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). This funding is in turn extended to the MPO's members to pursue regionally significant transportation projects. The MPO maintains a Metropolitan Transportation Plan (Santa Fe MPO, 2015), that includes a prioritized list of projects for 2015 through 2040. The document is informed by extensive public input and updated every five years.

Appendix A is a more detailed case study about the Santa Fe MPO.

Streets should be designed as ecosystems where man-made systems interface with natural systems. From pervious pavements and bioswales that manage stormwater run-off to street trees that provide shade and are critical to the health of cities, ecology has the potential to act as a driver for long-term sustainable design.

—Metropolitan Transportation Plan 2015–2040 (Santa Fe MPO, 2015)

Fe, with the goal of becoming carbon neutral by 2040. As part of the plan, the city will promote healthy aquifers by shifting the emphasis of stormwater infrastructure towards capture, infiltration, and utilization. While SSFC may not have a direct line to government funding, engaging with the group and promoting the city's stormwater priorities is another way to ensure they get considered in larger planning efforts.

Southern Sandoval County Arroyo Flood Control Authority (SSCAFCA)

SSCAFCA is another government agency near Santa Fe that routinely applies for and is awarded funding through government programs. SSCAFCA has knowledge of the planning and application process involved in pursuing government funding (particularly for funding arroyo-related projects through FEMA). Engaging with SSCAFCA can continue to inform the city while navigating these processes. **Appendix B** is a case study with further details on the SSCAFCA organization.



The New Mexico Rail Runner Express passing through the Santa Fe Railyard area.

Source: PG Environmental

Sustainable Santa Fe Commission (SSFC)

SSFC⁵ is a nine-member citizen group that advises the Santa Fe city government on environmental policies, programs, and projects. Pursuant to City of Santa Fe Resolution No. 2015-57, the commission has overseen the development of a 25-Year Sustainability Plan for the city that provides recommendations on environmental initiatives in Santa

⁴ Santa Fe Watershed Association website: <http://www.santafewatershed.org/>.

⁵ Sustainable Santa Fe website: https://www.santafenm.gov/sustainable_santa_fe.





3. IDENTIFY FUNDING OPPORTUNITIES

Once projects are identified and incorporated into planning, the city can focus on identifying funding and financing options. In addition to locally available funds, the State of New Mexico and the federal government offer a wide variety of funding opportunities that can help communities achieve their stormwater goals. Some opportunities, like the CWSRF, present a clear path for incorporating stormwater management; others may require more coordination.

Resources available to help communities and planners navigate the various funding options include EPA's "Green Infrastructure Funding Opportunities" website⁶ and the Water Finance Clearinghouse.⁷ Being aware of available funding and funding cycles and engaging in long-term planning to identify specific projects that contribute to a cohesive community vision for the future can increase the chances of having projects in waiting.

Government grant and loan programs *are supplements to a well-structured and sustainable financing approach*. Many government funding programs also include a local match or other financial contingencies, so a community should already be in a position to accommodate these requirements as opportunities become available.

Know the Value of Stormwater

As discussed in Section 1, stormwater projects may need to be incorporated into larger scopes of work, such as transportation and other capital improvement projects, to be eligible for external funding. A number of programs clearly outline the acceptance of stormwater and green infrastructure/LID practices. For example, CWSRF has a long list of items related to stormwater that can be funded.⁸ Even the U.S. Department of Transportation (USDOT) Better Utilizing Investments to Leverage Development (BUILD) Grant Program has specific ranking criteria related to environmental protection, including reducing water pollution as well as stormwater mitigation. However, stormwater may also be incorporated into other programs that are less explicit about stormwater management.

⁶ EPA Green Infrastructure Funding Opportunities website: <https://www.epa.gov/green-infrastructure/green-infrastructure-funding-opportunities>.

⁷ The EPA Water Infrastructure and Resiliency Finance Center's *Water Finance Clearinghouse* is a searchable database for sanitary sewer, stormwater, drinking water and other relevant funding sources from federal, state, local and other programs. Resources and information on available funding sources, including state-specific contact information, are updated regularly.

⁸ CWSRF stormwater website: <https://www.epa.gov/cwsrf/clean-water-state-revolving-fund-cwsrf-stormwater>.

Educating planners and decision-makers on the additional benefits of stormwater management beyond water quality and quantity control can be essential for achieving long-term stormwater goals in a community. Further, being able to identify and articulate the value stormwater management brings to a particular project and the community can help potential applicants target funding opportunities based on specific ranking criteria and metrics. For example, implementing stormwater management can offer social and economic benefits in areas such as:

- **Safety.** Stormwater management can reduce runoff volume and velocity from roadways, prevent flooding in busy pedestrian areas, and reduce dangerous erosion that could undermine bridge footings or culverts.
- **Public health and quality of life.** Beyond improving water quality, plants used to manage stormwater can contribute to improved air quality as well. Further, green infrastructure/LID practices implemented in places like parks, open spaces, and roads and trails can beautify the area and enhance recreational experiences.
- **Local economy.** Green infrastructure and LID practices often incorporate natural landscapes and native plantings, both of which can be aesthetically pleasing in a streetscape setting. Incorporating these elements into areas that are home to local businesses can help attract patrons by providing a more beautiful setting.

More detailed information on the value of stormwater management can be found in two documents sponsored by EPA: *The Value of Green Infrastructure: A Guide to Recognizing Its Economic, Environmental and Social Benefits* (CNT, 2010) and *The Economic Benefits of Green Infrastructure: A Case Study of Lancaster, PA* (EPA, 2014). Both highlight some of the quantitative and qualitative benefits of implementing stormwater management in a community.

Appendix C of this document summarizes various federal funding opportunities the city could pursue. Section 5 includes deeper discussion of four federal funding programs that may be particularly relevant to the City of Santa Fe:

- EPA/State of New Mexico CWSRF Program.
- USDOT BUILD Grant Program.
- U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant (CDBG) Program.
- EPA Section 319 Grant Program.

Pick the Right Project

Not all projects will match well with government funding opportunities; however, communities that have proactively planned projects in advance of funding needs will be well-positioned to pursue outside funding as soon as an opportunity arises. Maintaining a pool of potential projects enables decision-makers to choose the best for a particular funding program. Decision-makers can consider the following questions to determine if a project is a good fit for a specific government loan or grant program:

- Has sufficient planning been completed, and is enough data available to support a successful application?
- How does the project fit the criteria for funding?
- Does the project timeline align with the funding cycle?
- Are the terms of the program appropriate for the project (e.g., loan payoff timeline, design requirements)?
- Can the community provide enough matching funds (if required)?
- Are there any state, regional, or other partners that can contribute to or help advocate for the project?

Communities and agencies that routinely succeed at getting outside funding are well-versed in the application process (including how to meet key criteria) and communicate regularly with funding program administrators and application reviewers.



4. LEARN FROM PAST EXPERIENCE

Santa Fe has successfully pursued federal and state funding opportunities for various projects and programs across several city departments; however, incorporating stormwater management priorities has yielded mixed results.

Past Attempts and Lessons Learned

The city has pursued funding for several projects that highlighted green infrastructure and stormwater, but been unsuccessful for various reasons. In the past, the city applied for Transportation Alternatives Program (TAP) funding, FHWA's Recreational Trails Program, EPA Urban Waters and Section 319 grants, and assistance from EPA's Greening America's Communities initiative. While not all programs follow-up with reasons why projects were not selected, some do and these instances provide opportunities to improve.

In many cases, the city was not notified with clear reasons for unsuccessful applications. This underscores the need for Santa Fe to be proactive in following up with funding administrators after successful and unsuccessful applications. The city is often dedicating considerable resources to planning for and pursuing these opportunities, and it is important to learn how the process can be improved to maximize results.

In a handful of cases, it was clear why funding was not awarded. For example, the city has historically lacked a watershed-based plan, a prerequisite under EPA's Section 319 grant program. Further, Santa Fe's waterbodies have not always been formally classified with impairments—e.g., 303(d) and total maximum daily load (TMDLs)—which are often given priority ranking for water-quality-driven funding programs.

Making Improvements

The city has taken steps to improve stormwater planning and better position itself for success. Since 2017, Santa Fe has been engaging in an effort to internally evaluate its stormwater program as a whole and develop a Stormwater Management Strategic Plan. One of the many outcomes of this effort is to identify areas to improve the sustainability of the city's stormwater program funding. The city has also been working to generate hydraulic modeling reports in support of watershed-based planning. Further, the city has been working with EPA to develop *A Guide to Incorporating Green Infrastructure into Roadway Projects in Santa Fe*. These documents will help emphasize the value of managing stormwater and facilitate the integration of stormwater management into project planning.

Additionally, in 2017, EPA approved E. coli TMDL requirements for the Santa Fe River from Cienega Creek to Nichols Reservoir. This new requirement to address a recognized impairment may give the city better leverage when pursuing funding options geared towards improving water quality.

Success Story: The Acequia Trail Underpass

The Acequia Trail Underpass⁹ project was completed in 2017 and was funded through FHWA's Congestion Mitigation and Air Quality Improvement Program (CMAQ). The project's total funding was \$4,290,463, including over \$600,000 of local matching funds. The project involved constructing a path under St. Francis Drive, one of the busiest intersections in the city, giving cyclists and pedestrians a safer connection between southwest Santa Fe and the popular Santa Fe Railyard area. The Acequia Trail is one of four major trail corridors in Santa Fe and has an average of 358 users a day. Before construction, trail users crossed the intersection at St. Francis Drive via a signalized crosswalk. However, they often used unsafe and indirect paths to reach the crosswalk, such as crossing at unmarked mid-block locations rather than the crosswalk, jumping the road median, and not observing crosswalk countdown signals. Vehicles also failed to yield to cyclists and pedestrians at the intersection, and vehicles stopped in the crosswalk prevented safe passage.



Stormwater swale installed as part of the Acequia Trail Underpass project.

Source: City of Santa Fe

⁹ Information for this section was provided during communications with City of Santa Fe staff and from internal, city-provided documents related to the grant application and project development process.

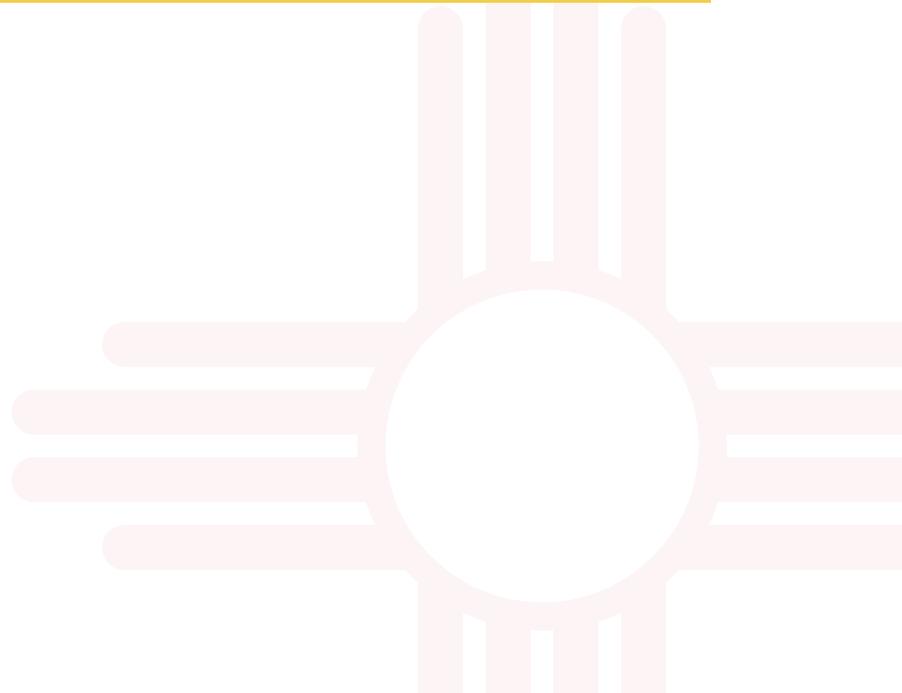
The city initially applied for Highway Safety Improvement Program (HSIP) funding through FHWA. It was unsuccessful, because it lacked the robust crash data necessary to satisfy HSIP's data-driven selection process. The city was eventually able to obtain project funding from FHWA's CMAQ Improvement Program—a program focused on traffic-calming and air quality improvements.

While the funding mechanism for the underpass project did not specifically highlight stormwater components, the city integrated these elements into the construction plan. For example, it conducted a detailed hydrologic study and hydraulic analysis to ensure offsite flows did not enter the Acequia Madre. Additionally, the project's hardscape and landscape plan included LID drainage features for stormwater management. The project also included several geomorphic and LID features to reduce runoff and erosion, maximize infiltration, and slow down water flow. For example, berms, mounds, knolls and swales route stormwater through the landscape into percolation trenches and infiltration ponds. Since the underpass creates an artificial depression, stormwater overflow from ponds is collected in a 15,000-gallon cistern and slowly discharged to the aquifer to prevent flooding. On-site and off-site drainage systems were also designed to accommodate a 100-year storm. Because these features were included in the design phase of the project, they were funded when the city received CMAQ funding. This project is a prime example of how stormwater components can be integrated into projects with funding vehicles not specifically set aside for stormwater/green infrastructure improvements.



The completed Acequia Trail Underpass project.

Source: City of Santa Fe







5. POTENTIAL OPPORTUNITIES FOR SANTA FE

This section provides a more in-depth view of four federal funding programs that the City of Santa Fe may consider pursuing in the future. They are a snapshot of current funding sources and descriptions. Note that some criteria and other information may change so be sure to check the various agency websites cited in this document for the latest information in the future.

U.S. Environmental Protection Agency: Clean Water State Revolving Fund (EPA CWSRF)

Program website: <https://www.epa.gov/cwsrf>

EPA's CWSRF program was established in 1987 to provide at- or below-market interest rate loans,¹⁰ refinancing assistance, and loan guarantees for water infrastructure projects. EPA provides capitalization grants to the 51 CWSRF programs across the country each year;¹¹ states are required to contribute a 20 percent match. Loan repayments “revolve” back into state funds to finance future projects. The CWSRF is “ideally suited to serve as sources of low or no cost financial assistance to a broad and diverse range of publicly and privately-owned green infrastructure projects” (EPA, 2016). The CWSRF Green Project Reserve (GPR), established in 2009, is specifically designed to support green infrastructure, water and energy efficiency improvements, and other innovative activities (EPA, 2017a). Since 2009, \$1.7 billion was reported as going toward green infrastructure projects nationally through the CWSRF program.

EPA encourages state CWSRF programs to offer financial incentives and priority ranking criteria/bonus points for green infrastructure projects (EPA, 2016). In New Mexico, CWSRF applications can receive a maximum of 475 points; up to 25 points are awarded to projects that incorporate stormwater best management practices (BMPs), and 25 bonus points are awarded to projects that can be classified under the GPR (EPA, 2015a). However, none of the 21 active CWSRF loans were for stormwater-focused projects as of the end of FY 2017 (NMED, 2017).

¹⁰ CWSRF loans offer terms up to 30 years, though no longer than the useful life of the project.

¹¹ EPA provides CWSRF grants to all 50 states and Puerto Rico.

States have the flexibility to provide additional subsidies to municipal or intermunicipal funding recipients in the form of principal forgiveness, negative interest loans, or grants. The maximum percentage of a state's capitalization grant used for additional subsidization ranges from 0 to 30 percent, depending on the amount of the total appropriation.

NMED aims to provide the maximum allowable additional subsidy each year (NMED, 2018a). Additional subsidization can be provided to address affordability issues (for municipalities that meet New Mexico's affordability criteria; NMED, 2018a); to benefit individual residential rate payers; or for projects/activities that address water or energy efficiency goals, mitigate stormwater runoff, or encourage sustainable project planning/design/construction (EPA, 2015b).

Eligibility

New Mexico's CWSRF program is managed by NMED's CPB.¹² The application period opens once per year, typically in the spring.¹³ Several broad categories of projects are eligible for the program.

Eligible Types of Projects

- Constructing publicly owned treatment works (POTWs)
- Nonpoint source
- Reducing the demand for POTW capacity through water conservation, efficiency, and reuse
- Stormwater
- Decentralized systems
- Technical assistance/planning
- Watershed pilot projects
- Energy efficiency, water efficiency, or reuse
- Reusing or recycling wastewater, stormwater or subsurface drainage water
- Security measures at POTWs
- National Estuary Program projects

Most municipalities are eligible to pursue funding for **stormwater projects**,¹⁴ including:

- Stormwater BMP projects that use cost-effective controls and use innovative technologies.
- Development and implementation of a municipality-wide stormwater management plan.
- Projects designed to manage, reduce, treat, reuse, or recapture stormwater or subsurface drainage water.
- Development or implementation of watershed partnerships between municipalities and property owners to address nonpoint sources of pollution.
- Management of municipal wet weather discharges on an integrated watershed or subwatershed basis, demonstrating the effectiveness of a unified wet weather approach.

Further, projects that contribute to the implementation of a Section 319 Nonpoint Source Management Program or a Section 320 Comprehensive Conservation and Management Plan are also typically eligible for funding. Eligibility requirements vary to some extent for planning, energy and water conservation, and surface water protection, and restoration projects. As of 2014, projects pursued to meet the requirements of a MS4 permit are eligible for CWSRF funding, regardless of ownership (public or private).

¹² Contact: NMENV-cpbinfo@state.nm.us or 505-827-2806.

¹³ Application forms and supplemental materials are available at <https://www.env.nm.gov/construction-programs/cpb-forms-and-documents/#CWSRF-ApplicationandInformationtoApply>.

¹⁴ NMED has petitioned the state's Water Quality Control Commission to expand the list of eligible CWSRF assistance recipient to include state agencies.

The following types of projects are eligible for CWSRF funding and may be particularly applicable to the city.

Specific Types of Stormwater Projects Applicable to Santa Fe

- Traditional pipe, storage, and treatment systems
- Real-time control systems for combined sewer overflow management
- Stormwater BMPs
- Watershed management of wet weather discharges
- Sediment controls including:
 - Silt fences
 - Storm drain inlet protection
 - Street sweepers
 - Vacuum trucks
- Green roofs, green streets, and green walls
- Rainwater harvesting, storage, management, and distribution systems
- Real-time control systems for harvested rainwater
- Infiltration basins
- Constructed wetlands, including surface flow and subsurface flow wetlands
- Bioretention/bioswales (e.g., rain gardens, tree boxes)
- Permeable pavement
- Wetland/riparian/shoreline creation, protection, and restoration
- Establishment/restoration of urban tree canopy
- Integrating green infrastructure into existing gray infrastructure including purchase and demolition costs
- Municipality-wide stormwater planning*
- Water conservation education and incentive programs (e.g., installation of permeable surfaces or rain barrels)
- Distribution lines to support water reuse and use of harvested precipitation
- Energy-efficient equipment and components (e.g., lighting, HVAC, electronic systems)
- On-site and off-site renewable energy (at a POTW)
- Land acquisition**
- Asset management/fiscal sustainability planning*
- Integrated planning*
- Cost and effectiveness analyses
- Capital improvement plans*

* Eligible if these activities are reasonably expected to result in a capital project

**Land acquisitions implementing an NPS management plan, 320 plan, or that meet the Sec 122 criteria do not have to be part of a larger project.

Additional Program Requirements

As of 2014, a municipal or intermunicipal CWSRF assistance recipient must conduct a cost and effectiveness analysis. This analysis must include study and evaluation of the cost and effectiveness of the processes, materials, techniques and technologies for carrying out the proposed project or activity for which assistance is sought. Projects and activities must show they increase the potential for efficient water use, capture, reuse, and conservation and energy conservation to the maximum extent practicable (taking into account construction costs, operations and maintenance costs over the lifetime of the project/activity, and replacement costs) (EPA, 2015b).

Project Examples

In FY 2017, NMED issued eight construction loan agreements and one amendment to an existing agreement, totaling over \$9.5 million. The new loan agreements ranged in value from \$582,500 to \$3 million. Since the program's inception, NMED has provided \$405 million in cumulative assistance, \$2.99 million of which was for gray or green stormwater infrastructure projects (\$350,000 in green infrastructure via one assistance agreement, and the remainder in gray via three assistance agreements).

In 2015, SSCAFCA completed a CWSRF-funded green infrastructure project at the Lower Montoyas–area flood control facility. The project was included by EPA in the “Recognized Excellence” category of the Performance and Innovation in the SRF Creating Environmental Success (PISCES) program in 2017, which acknowledges exceptional CWSRF-funded projects. This type of project can serve as a particularly good example for Santa Fe, as the city is responsible for managing and maintaining arroyos for its own community. **Appendix B** includes a more detailed case study of SSCAFCA and the Lower Montoyas project.

“After flooding plagued the Village of Corrales, NM, in 2006 and 2013, SSCAFCA developed a project utilizing innovative green design to enhance the absorption of stormwater to lower the risk of further floods. The core element of the project was a ‘mechanical phytoremediation’ facility designed to use the capacity of plants to capture and filter sediment, floatables, and debris from stormwater and to allow for the absorption of the remaining flow into a permeable surface. This low-impact project preserves the arroyo in its natural state and creates open space with trails for community use”

—PISCES Recognition Program: 2017 Compendium (EPA, 2017c)



Flooding and floatable controls installed as part of SSCAFCA's Lower Montoyas project.

Source: SSCAFCA

U.S. Department of Transportation: Better Utilizing Investments to Leverage Development (USDOT BUILD) Grant Program

Program website: <https://www.transportation.gov/BUILDgrants>

USDOT's BUILD Grant Program, which replaced the Transportation Investment Generating Economic Recovery (TIGER) program in 2018, funds surface transportation projects that have a significant regional or local impact. The program considers the extent to which the applicant has implemented “local activities to generate additional non-Federal revenue for transportation infrastructure” (CFR, 2018). In 2017, TIGER grants were awarded to 41 projects across the country ranging in value from \$2 million to the \$25 million maximum (USDOT, 2017).



BUILD grants have been successfully applied to green and gray stormwater infrastructure and other stormwater management components, and are often used to fund Complete Streets– and Green Streets–type projects. Environmental protection, quality of life and innovation are three of the merit criteria for BUILD grants that could be leveraged for implementing stormwater management into project designs (USDOT, 2018b). USDOT specifically encourages applicants to provide data on a project’s anticipated environmental benefits, including reduced energy consumption and stormwater runoff (CFR, 2018).

Eligibility

Eligible grant recipients include state, local, and tribal governments, including transit agencies, port authorities, metropolitan planning organizations (MPOs) and other political subdivisions of state or local governments. States and jurisdictions can also coordinate to submit a joint application (as long as all participants are eligible) (USDOT, 2018a). The following are general examples of projects eligible for BUILD grants (CFR, 2018):

- Highway, bridge or other road projects eligible under Title 23 of the U.S. Code.
- Public transportation projects eligible under Chapter 53 of Title 49 of the U.S. Code.
- Passenger and freight rail transportation projects.
- Intermodal projects.

In 2018, Congress also authorized up to \$15 million for planning grants that can be used for activities such as preliminary engineering and design, environmental and final design, and feasibility studies. Projects are ultimately evaluated against their alignment with one or more of the program’s merit criteria,¹⁵ which includes, among others, environmental protection. Considerations that may be especially relevant to Santa Fe’s long-term stormwater planning efforts are outlined in the following table. Santa Fe can pursue these opportunities on its own or in conjunction with a local planning group, like the Santa Fe MPO (see **Appendix A**) or NMDOT.

Complete Streets

More than 1,400 cities and towns across the country (including the Santa Fe MPO) have pursued Complete Streets policies to make their roadways more accessible for all forms of transportation, minimize the environmental impacts of impervious surfaces, and improve safety. Complete Streets designs often incorporate green infrastructure elements like bioswales or planters) for sustainable stormwater management. These natural and engineered solutions reduce the risk of local flooding while offering valuable co-benefits like improvements in air quality and enhanced recreational spaces.

¹⁵ Contact: BUILDgrants@dot.gov, or 202-366-0301. Application forms and supplemental materials are available at <https://www.transportation.gov/BUILDgrants>.

Merit Criteria	Evaluation Considerations
Safety	<ul style="list-style-type: none"> Watershed pilot projects
State of good repair	<ul style="list-style-type: none"> Project aligns with existing plans to keep transportation facilities or systems in good repair and address current to projected vulnerabilities If unaddressed, asset condition threatens accessibility, mobility of goods or people, economic growth, and transportation network efficiency Project is appropriately capitalized up front and uses asset management to optimize long-term cost structure
Economic competitiveness	<ul style="list-style-type: none"> Better long-term efficiency, reliability or costs of people or goods mobility More economic productivity of land, capital, or labor Long-term job creation or other economic opportunities
Environmental protection	<ul style="list-style-type: none"> Reduced water pollution through congestion mitigation strategies Avoided adverse environmental impacts to water quality and wetlands Environmental benefits, such as wetlands creation or improved habitat connectivity and stormwater mitigation
Innovation	<ul style="list-style-type: none"> Innovations in transportation funding and finance, including by using private sector funding
Partnership	<ul style="list-style-type: none"> Projects demonstrate strong collaboration among a broad range of stakeholders to achieve local or regional benefits Project applications demonstrate collaboration among neighboring or regional jurisdictions, including neighboring rural areas, to achieve local or regional benefits Projects include partnerships that bring together diverse transportation agencies and/or are supported, financially or otherwise, by other stakeholders that are pursuing similar objectives

The evaluation considerations under each merit criterion are detailed further in USDOT’s presentation *How to Compete for FY 2018 BUILD Transportation Discretionary Grants*. This presentation (USDOT, 2018c) identifies the following characteristics of highly competitive BUILD grant project applications:

- Demonstrated **strength in merit criteria**. USDOT recognizes that a project will not align with all selection criteria; applicants are encouraged to focus on the criteria/criterion that best fits the project.
- Projects that will enter construction **within the period of obligation**. For 2018 funding, applicants were asked to target projects starting by June 30, 2020.
- **A clear story and project impact**. Applicants are encouraged to describe the problem and explain why the project is the solution to that problem, up front. The applicant should then address the selection criteria that are most appropriate to the project, and articulate the benefits that will be realized by the project.
- A **definitive timeline** and pathway for project success and completion.
- Incorporation of **innovative funding and finance approaches**.
- Inclusion of a **strong partnership component** (including public-private partnerships), particularly new partnerships, and multi-jurisdictional cooperation. The competitiveness of the application is not affected by whether or not the proposed partnerships are financial in nature.

Project Examples

USDOT has made available information for all 462 projects funded in the previous nine rounds of BUILD/TIGER funding,¹⁶ as well as information on all projects for which applications were submitted (whether they received funding or not) over those previous funding cycles, including four from the City of Santa Fe.¹⁷ TIGER grants have been awarded both to stormwater-focused projects and transportation-focused projects that include stormwater elements. Examples of successfully funded projects include the following.

Location	Project Description	Stormwater Elements	Benefits
Carson City, NV	Complete Streets initiative to address roadway, parking lot, and building flooding	Gray and green stormwater components to improve drainage estimated at \$3.2 million out of a total project cost of \$19 million (Carson City, 2017)	Better traffic flow, safety, and access to local businesses; encouragement of private sector investments
Syracuse, NY	Supported green street design and construction in the first phase of a larger effort to connect the downtown business district and Syracuse University campus	Tree trenches, porous pavement, and landscape buffers designed to reduce stormwater runoff by an estimated 5.74 million gallons per year (Save the Rain, 2011)	More safety, introduction of new multimodal facilities for bicycles and pedestrians, better environmental and public health, and more economic competitiveness (USDOT, 2011)
Washington, D.C.	Part of a project to interconnect a large network of bicycle and pedestrian paths	Innovative stormwater management techniques to reduce runoff into the Anacostia River	More safety and economic and health benefits for local communities, including low-income neighborhoods (USDOT, 2012)

U.S. Department of Housing and Urban Development: Community Development Block Grants (HUD CDBG Program)

Program website: https://www.hud.gov/program_offices/comm_planning/communitydevelopment

As a HUD-designated entitlement community, the City of Santa Fe already receives annual CDBG funding of about \$500,000. The city's Community Development Commission is responsible for allocating the funds to local agencies and nonprofits to carry out the goals and strategies related to housing and community needs as outlined in Santa Fe's Draft Consolidated Plan 2018–2022 (City of Santa Fe, 2018). The draft plan articulates the following high-level program goals (Santa Fe Community Development Commission and Open House, 2018):

- Increased opportunities for at-risk populations through reduction in the rate of households with cost burden.
- Increased affordable housing opportunity through increased inventory of very-low-income rental units and vouchers.
- Increased opportunity for homeownership and increased support for current homeowners.
- Improving housing opportunities to reflect urban needs; aligning redevelopment projects, economic development objectives and sustainability goals to reflect changing demographics.

CDBG-funded programs, projects and activities are able to include sustainable building practices and initiatives, such as effective stormwater management and water quality improvements. As part of the final goal

¹⁶ See <https://www.transportation.gov/BUILDgrants/all-projects-map>.

¹⁷ See <https://www.transportation.gov/policy-initiatives/tiger/tiger-application-list>.

listed above, the city recognizes the need for housing that achieves “high standards of sustainability through green building, design, and alternative energy sources.” The draft plan also highlights the importance of water resources and infrastructure for Santa Fe’s business community. A 2013 update to the city’s Housing Needs Assessment acknowledged progress in incorporating green/sustainable components into building upgrades and new housing developments, including water catchment, drip irrigation and rainwater harvesting (City of Santa Fe, 2013), as well as conversion from septic (using CDBG funding).

All CDBG projects must address needs of low- to moderate-income city residents. Eligible projects may include (City of Santa Fe, n.d.):

- Acquisition of real property.
- Relocation and demolition.
- Rehabilitation of residential and non-residential structures.
- **Provision of public facilities and improvements—water and sewer services, flood and drainage improvements, aesthetic amenities including trees, parks, sidewalks, curbs and gutters, etc. (HUD, 2014).**
- Down payment assistance toward the purchase of a home.
- Payment for public services within certain limits.

Since 2007, about 10 percent of Santa Fe’s available CDBG funding has been provided for public facility improvements (City of Santa Fe, 2017a).

Project Examples

Below are examples of successfully funded CDBG projects from other communities that have been able to incorporate stormwater elements.

Location	Project Description	Stormwater Elements	Benefits
Adams, MA	Address drainage, accessibility and other issues	Stormwater retrofits and installation of rain gardens	Improve the town’s visitor center parking lot (iBerkshires, 2017)
Storm Lake, IA	Improve stormwater drainage in the town’s Erie Street area	Design and construction of a stormwater conveyance system that includes permeable pavers, rain gardens, bioswales and tree wells	Anticipate significant reduction in stormwater runoff and pollutant loading (Storm Lake, n.d.)
Pittsburgh, PA	Transform a blighted, vacant hotel into part of a larger streetscape (also used Allegheny County funding and EPA Section 319 funds)	Incorporates trees, underground storage to promote infiltration, pervious pavers, bio-filtration systems, a rain park, and other green infrastructure components	Manage an estimated 500,000 gallons of stormwater runoff per year (Ramage, 2017)
Chicago, IL	Carry out an innovative green retrofit of a historic (1897) building, the Chicago Cultural Center	Green roof supplemented by solar panels	Reduce rooftop runoff and incorporate an irrigation system fed by recycled rainwater (EPA, 2015c)

While not specifically stormwater-focused, cities cities (including Bangor, ME and Ashland, KY) have used CDBG funding to revitalize neighborhoods in part through the development and installation of green space (which could have added stormwater management benefits, if desired). Cities (including Austin, TX, Bellevue, NE, and Attleboro, MA) invested CDBG funding in substantial infrastructure upgrades (including water services, surface transportation and sidewalks) to redevelop neighborhoods for low-income residential housing and retail and commercial space (USCM, 2017).

CDBG—Disaster Recovery Assistance¹⁸

As an extension of the CDBG program, HUD's Disaster Recovery Assistance program also has funding available for recovery after major disasters, as well as for implementing measures for resiliency against future disasters. In April 2018, HUD announced the award of about \$28 billion to help disaster recovery in several states, as well as Puerto Rico and the U.S. Virgin Islands. These funds were targeted at helping areas that have experienced Presidentially declared disasters since 2015, and will help communities repair and restore residences, businesses and infrastructure, as well as protect against future events. Funding can be requested in response to events like extreme weather and wild fires. Santa Fe can keep this funding source in mind in case the need arises.

U.S. Environmental Protection Agency: Section 319 Grant Program

Program website: <https://www.epa.gov/nps/319-grant-program-states-and-territories>

EPA's Clean Water Act Section 319 program allocates funding to states¹⁹ to support non-point source pollution reduction efforts. EPA's Section 319 program guidance specifically recognizes the "importance of green infrastructure...in managing stormwater" and supports awarding funding to green infrastructure projects (EPA, 2013). Urban stormwater runoff activities are eligible for Section 319 funding if those activities are not required by or do not directly implement a draft or final National Pollutant Discharge Elimination System (NPDES) permit. Eligible activities may include:

- Technical assistance.
- Monitoring activities related to designing and evaluating urban runoff management strategies.
- Outreach and education.
- Regulatory, policy or local ordinance development.
- BMPs.
- Technology transfer and training.

New Mexico's 319 funds are administered by NMED's SWQB. Eligible projects "must be in watersheds of specified priority stream reaches" (i.e., stream reaches listed as impaired in New Mexico's current Section 303(d)/305(b) Integrated Report) (NMED, 2018b). Eligible funding recipients include citizen watershed groups; nonprofit and for-profit organizations; citizens; and federal, state and local agencies.

New Mexico had a total of \$200,000 available in 319 grants in federal fiscal year 2018; grantees were required to provide at least 40 percent of the project in cash or in-kind match (NMED, 2018b). SWQB first reviews grant applications to confirm application completeness and project and applicant eligibility, then evaluates and scores qualifying applications.

"An important component of [the Section 319 Grant Program] process is the watershed-based plan (WBP) approach as outlined in the guidance provided in EPA's Nonpoint Source Program and Grants Guidelines for States and Territories ... A WBP expands on the information provided in a TMDL by identifying causes and sources of impairment, recommending management measures, estimating expected load reductions from management measures, providing methods to measure implementation success, estimating funding needs, and outlining potential education and outreach efforts. NMED intends to support watershed-based planning through a competitive statewide request for grant applications (RFGA), conducted approximately annually, and through technical support provided to partner agencies and stakeholder groups interested in water quality. The first such RFGA was released in November 2017 and is similar to past requests for proposals (RFPs) for watershed-based planning projects. More information on watershed-based planning is available at www.env.nm.gov/surface-water-quality/wbp."

—State of New Mexico Nonpoint Source Management Program: 2017 Annual Report (NMED, 2018c)

¹⁸ HUD CDBG Disaster Recovery Assistance website: <https://www.hud.gov/hudprograms/disaster-recovery>.

¹⁹ Allocations based on an established formula.

Project Examples

In the early 2000s, Santa Fe partnered with NMED, the local water conservation district, Santa Fe County, and local advocacy groups in a Section 319–funded project to improve water quality by restoring riparian vegetation along the Santa Fe River, downstream of the city’s wastewater treatment plant. The project helped improve water quality in the area, including reducing sediment and normalizing pH levels. The effort has been featured as one of EPA’s program success stories (EPA, 2011). Examples of successful projects in other communities that have incorporated stormwater elements are described below.

Location	Project Description	Stormwater Elements
Ciudad Soil and Water Conservation District, New Mexico	Evaluate opportunities to reduce fecal coliform and E. coli bacteria discharged from Bernalillo County’s stormwater collection and systems in the Rio Grande–Albuquerque watershed	Evaluation and prioritization of applicable BMPs, public education on septage disposal practices and reporting, installation of sensors and data loggers at stormwater pump stations, incorporation of relevant stormwater management and control activities into watershed action strategy (EPA, n.d.[a])
Commonwealth of Massachusetts	Stormwater reduction modeling and BMP installation	<p>Awarded \$48k in funding to a for-profit entity to generate a quantitative characterization of the potential role of mature tree canopy in achieving significant stormwater runoff reduction, develop model municipal and state regulatory language to encourage use of tree canopy as a BMP, and compile guidelines for stormwater management through the use of tree canopy (MassDEP, 2017b)</p> <p>Provided \$218k in funding to a regional council of governments to design and install BMPs to reduce urban stormwater runoff into a Category 5 impaired river; this effort also involved community outreach, public awareness, and education for local officials on LID regulation (MassDEP, 2017a)</p>
City of Albuquerque	Urban green infrastructure/LID retrofitting demonstration project; <i>discontinued after design phase due to lack of matching funds</i>	Design, permitting and construction of a one-acre green infrastructure–LID retrofit project using an existing private urban shopping center parking lot with a history of stormwater drainage problems (EPA, n.d.[b])



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Appendix A: Case Study—Santa Fe Metropolitan Planning Organization

Metropolitan Planning Organizations (MPOs) are regional organizations composed of cities, counties and towns. They are federally designated planning agencies in urbanized areas with populations greater than 50,000. Funded by USDOT, they serve as centralized agencies for coordinating regional transportation projects and policies. They typically maintain a broad portfolio of projects for all modes of transportation, including roads, pedestrian/bicycling facilities, transit, rail, marine, freight and, air.

The Santa Fe MPO was established in 1982. A staff of three is overseen by the Transportation Policy Board, comprising eight elected and appointed members, that serves as the final arbiter on all decisions. A 12-person Technical Coordinating Committee representing member agencies (i.e., city and county government, regional transit service providers, NMDOT, and, the Pueblo of Tesuque) offers guidance and expertise.

Santa Fe MPO receives federal funds channeled through NMDOT for program administration, data collection, and planning. Due to its small size, it does not receive a sub-allocation of funds to program transportation improvement projects for its member agencies. However, the MPO does support planning for member-sponsored projects that are either federally funded or regionally significant.

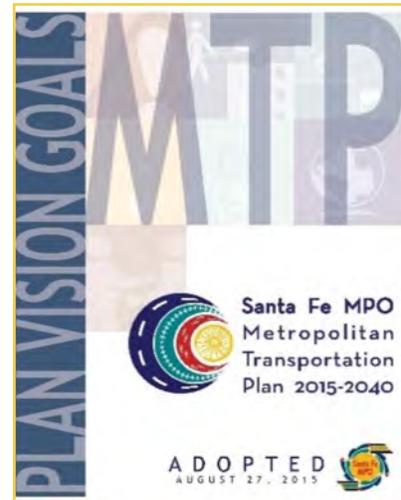


Figure A-1. Santa Fe MPO's long-term transportation project planning guide.

Project Planning and Funding

The Santa Fe MPO's Metropolitan Transportation Plan (MTP) includes a prioritized list of regionally significant transportation projects proposed by member entities over a 25-year horizon. The current version²⁰ extends through 2040. The document is informed by extensive public input and updated every five years.

Although the Santa Fe MPO does not fund projects itself, federal regulations require it to provide planning services through a comprehensive, collaborative, continuing process, helping member agencies identify and apply for project funding. Short-term projects—projects expected to commence and need funding within a four-year period—are included as part of the MPO's Transportation Improvement Program (TIP). All projects from all entities must be consistent and included in the MTP to be considered for funding. Further, proposed projects must demonstrate alignment with seven federal goals outlined in the Fixing America's Surface Transportation Act, which provides long-term funding certainty for surface transportation infrastructure and investment:

1. Safety.
2. Infrastructure condition.
3. Congestion reduction.
4. System reliability.
5. Freight movement and economic vitality.
6. Environmental sustainability.
7. Reduce project delays.

Funding programs available for TIP projects include:

- Metropolitan Planning.
- National Highway Performance Program.
- Surface Transportation Block Grant Program.
- HSIP.
- CMAQ.
- TAP.

²⁰ Santa Fe Metropolitan Planning Organization. (2015). Metropolitan Transportation Plan 2015–2040. Retrieved from http://santafempo.org/wp-content/uploads/2015/09/Santa-Fe-MPO-MTP_FINAL_Electronic.pdf.

These programs typically favor National and State Highway System projects and local projects determined to be regionally significant. Santa Fe MPO representatives indicated bridge rehabilitation and paving projects tend to be given higher priority. The TIP is updated every two years in coordination with NMDOT.

Integrating Stormwater into MPO Projects

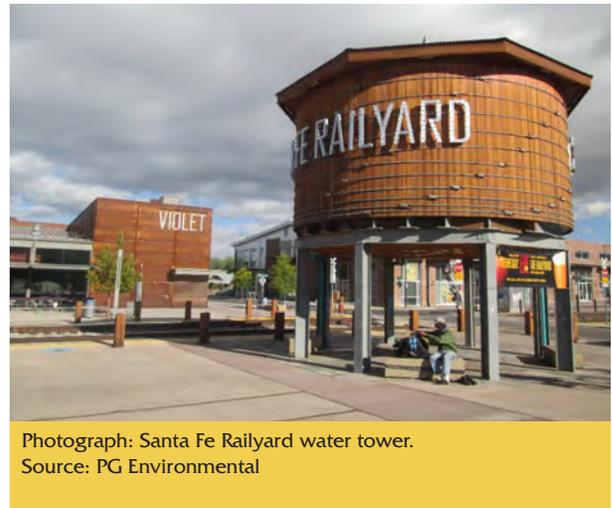
The MPO recognizes the value that stormwater management concepts can bring to transportation projects, and the MTP actively promotes the use of green infrastructure/LID practices. Santa Fe MPO promotes green streets design practices and has adopted *A Resolution Advancing Complete Streets for the Santa Fe Metropolitan Planning Area*,²¹ which states “the Santa Fe Metropolitan Planning Organization promotes a multi-modal, regional transportation system that is safe, energy and fiscally efficient, maximizes community connectivity, serves the mobility needs of all citizens, and exists in harmony with the environment.” Design concepts like

“There is a huge opportunity for projects to significantly reduce their carbon footprint and, in many cases, overall costs simply by using construction materials that are locally sourced, recycled, and sustainably produced. Known as Green Infrastructure (GI) and LID techniques, these sustainable design and construction methods are gaining in popularity because of their ability to reduce runoff, improve stormwater quality, preserve or create valuable habitat, contribute to more livable and walkable communities, and be eligible for LEED accreditation by the US Green Buildings Council.”²²

narrower street widths, bioretention curb extensions and sidewalk planters, permeable pavement, and sidewalk trees and tree boxes are just some of the LID techniques recommended specifically in Santa Fe’s MTP.

MPO Projects in Santa Fe

The City of Santa Fe has a successful working relationship with the MPO. Projects like the **Santa Fe Railyard** (pictured on right), which included improvements to the New Mexico Rail Runner Express, were planned with the assistance of the MPO and have stimulated economic growth in Santa Fe. Looking toward the future, the MPO has expressed interest in helping the city accomplish its environmental sustainability goals, including in relation to long-term stormwater planning.



Photograph: Santa Fe Railyard water tower.
Source: PG Environmental

The city is currently leading or participating in several projects proposed in the 2015–2040 MTP, including multiple sites along the **Guadalupe Street corridor**. These proposed projects involve designs related to a road diet that eliminates travel lanes from a roadway and instead uses the area for other uses and travel modes, in this case improving pedestrian safety and accessibility. The sites in this area that are still in planning and not yet at full-design offer opportunities for the city to be proactive in incorporating innovative stormwater management concepts and subsequently securing government funding. To this end, EPA has worked with the city to develop some concepts of what green infrastructure and LID designs would look like for the corridor. These have been highlighted in a separate document called *A Guide to Incorporating Green Infrastructure into Roadway Projects in Santa Fe*.

²¹ Santa Fe MPO (Metropolitan Planning Organization). (2007). A resolution advancing complete streets for the Santa Fe metropolitan planning area. Retrieved from <http://santafempo.org/wp-content/uploads/2009/07/Complete-Streets-Resolution.pdf>.

²² Santa Fe Metropolitan Planning Organization. (2015). Metropolitan Transportation Plan 2015–2040. Retrieved from http://santafempo.org/wp-content/uploads/2015/09/Santa-Fe-MPO-MTP_FINAL_Electronic.pdf.

Appendix B: Case Study—Southern Sandoval County Arroyo Flood Control Authority

Southern Sandoval County Arroyo Flood Control Authority's service area is in central New Mexico, north of Albuquerque and southwest of Santa Fe. It encompasses about 225 square miles and serves a total population of 90,000 across Rio Rancho, Corrales, Bernalillo and Sandoval Counties (see Figure B-1).

SSCAFCA's mission is to protect citizens and property by implementing proven flood control solutions. Unlike a traditional utility with a fee structure, its operational budget is funded through property tax levies, while its capital budget is supported through bond sales and, in many cases, federal and state grants and loans.

SSCAFCA does not have a direct relationship with the City of Santa Fe; however, they are connected regionally, as both are part of the Rio Grande watershed. One of SSCAFCA's main functions is to manage and maintain the arroyos in its jurisdiction, which is also a significant service provided by the City of Santa Fe for its constituents. Additionally, SSCAFCA serves as a good example of an organization that makes the most of its funding and can be looked to as a resource for best practices in leveraging external government-sponsored opportunities.

SSCAFCA engages in a calculated, long-term funding approach for stormwater management and flood control projects. To maximize every public dollar it receives, the authority is heavily involved in pursuing external government funding subsidies and also private partnerships.

Long-Term Planning Approach

SSCAFCA has been particularly adept at securing federal funding for its stormwater mitigation projects thanks in part to a long-term planning approach. Staff attribute their success to a strong push to identify needed flood control facilities and improvements soon after the agency was established.

Engaging in a working relationship with local service area communities was cited as another key element for success. SSCAFCA is regulated under a watershed-based NPDES MS4 permit that encourages ongoing coordination. SSCAFCA's drainage projects are viewed as especially valuable by the surrounding municipalities, allowing them to conserve their limited water resource budgets and focus on other priorities.

SSCAFCA's relationship with its service community helps inform the development of its five-year plan, which strategically aligns projects with government funding cycles. The agency also maintains a broader 15-year



“[SSCAFCA's] second major focus is a continuation of the strategy to pursue external funding sources to match with our local bond funds. SSCAFCA is continuing to pursue state capital outlay funds, for the third consecutive year, and has successfully received funding from the State Water Trust Board, the NM Environment Department with a Clean Water Revolving Loan Fund grant/loan combination, as well as FHWA funding through the Mid-Region Council of Government for two separate projects...SSCAFCA has also received funding support from the US Army Corps of Engineers (USACE) in the form of sediment transport soil analysis and the Federal Emergency Management Agency (FEMA) in their Hazard Mitigation Grant Program...In addition to these sources, SSCAFCA continues to apply for other federal grants.”²³

²³ SSCAFCA (Southern Sandoval County Arroyo Flood Control Authority). (2015). Flood control today for a safe tomorrow. Retrieved from <https://sscafca.org/wp-content/uploads/2012/08/FINAL-4096-Southern-Sandoval-County-Arroyo-Flood-Control-Authority-FY15.pdf>.

funding needs analysis. This proactive measure allows SSCAFCA to be nimble in pursuing project funding—SSCAFCA has plans at the ready when opportunities arise.

SSCAFCA is solely responsible for managing flood controls (i.e., arroyos) within its service area, and it has no regulatory oversight responsibilities. This makes it different from most traditional municipal governments. As a result, staff can devote more resources to project planning and identifying funding opportunities. Multiple staff often collaborate on an application. SSCAFCA representatives indicated that the level of effort for an application generally corresponds to the funding amount and some applications may take up to one month of staff time, collectively. Because the conceptual project plans have been developed in advance, it is easier to match them with a corresponding funding source as they become available.

Federal Funding Portfolio

SSCAFCA's long-term planning approach has yielded nearly \$13 million in federal funding since 2012, with more than half of the funding coming from FEMA (see Figure B-2). SSCAFCA has been successful in competing for FEMA's **Pre-Disaster Mitigation Grant Program**, which is designated for projects that reduce overall risk to the population and structures from future hazard events. To best position itself for this opportunity, the authority highlights the safety aspects of arroyo improvement when applying. SSCAFCA has also been awarded funding through FEMA's **Hazard Mitigation Grant Program**, which supports post-disaster projects that aim to reduce or eliminate long-term risk to people and property from future disasters. To be eligible for FEMA funding, projects must meet a designated benefit-cost ratio for protection of property and life.²⁴

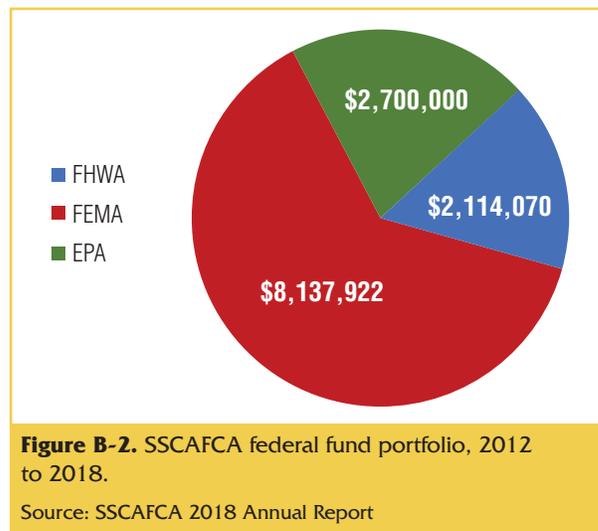


Figure B-3. Grade control structure in the Lower Montoyas arroyo incorporating planting strip.
Source: SSCAFCA

By designing multifunctional projects, SSCAFCA has also been able to secure funds under FHWA's **TAP**, which supports smaller-scale transportation projects such as pedestrian and bicycle facilities and recreational trails. Specifically, it has submitted trails/outdoor access projects that include drainage protection elements. For example, SSCAFCA was able to incorporate erosion and sediment control improvements a TAP-funded arroyo bridge crossing project.

Project Example: Lower Montoyas Water Quality Feature

As stated earlier, SSCAFCA manages local arroyos, which are common in the southwestern United States and especially prone to flooding. With an arid climate, the area is vulnerable to flash flooding during monsoon season, which typically spans mid-June through the end of September. Storms in 2006, 2010 and 2013 caused significant damage to SSCAFCA's service area and posed a hazard to the health and safety of local residents.

²⁴ SSCAFCA (Southern Sandoval County Arroyo Flood Control Authority). (2015). Flood control today for a safe tomorrow. Retrieved from <https://sscafca.org/wp-content/uploads/2012/08/FINAL-4096-Southern-Sandoval-County-Arroyo-Flood-Control-Authority-FY15.pdf>.



SSCAFCA identified the Lower Montoyas arroyo, downstream of the largest urbanized watershed within its jurisdiction, as a priority for implementing stormwater controls. Staff initially considered installing a traditional dam structure for flood management; however, local residents expressed the desire to maintain the natural landscape. Instead, the agency identified a more cost-effective green infrastructure/LID approach to restore natural hydrology and enhance infiltration capacity.

SSCAFCA learned about the opportunity to use EPA's CWSRF to help finance the project by communicating directly with representatives from the NMED CPB. At that time, the CWSRF incorporated a ranking bonus for applicants pursuing green infrastructure approaches, increasing the likelihood of acquiring funding for this particular project. Favorable loan terms and grant availability made CWSRF financing attractive to use. For example, the authority would not be required to start repaying debt until after construction was complete. Further, the available 20-year loan term allows SSCAFCA more financial flexibility because the authority's bond cycle is typically only 13 years. The resulting smaller payments spread over a longer period would allow SSCAFCA to allocate the difference to other projects. Staff indicated that the proposal was able to come together quickly because of advanced planning.

The Lower Montoyas Water Quality Feature Project was awarded a \$2 million CWSRF loan in 2013, covering most of the project cost. The in-channel water quality facility included the strategic placement of natural elements, such as vegetation and boulders and re-grading in order to slow water flows and filter out pollutants like sediment and floatables (see Figure B-3). The project, completed in 2015, was designed to handle flows from a 100-year storm, or up to about 6,000 cubic feet per second of flow, and retain up to 60,000 cubic yards of sediment and floatable debris.

Appendix C: Summary of Potential Federal Funding Opportunities

U.S. Environmental Protection Agency (EPA)

Program	Program Description	Examples of Funded Projects
<p>Clean Water State Revolving Fund (CWSRF)</p>	<p>Using a combination of federal and state funds, the program provides loans to construct municipal wastewater facilities, control nonpoint sources of pollution, build decentralized wastewater treatment systems, create green infrastructure projects, protect estuaries, and fund other water quality projects.</p> <p>The Best Practices Guide (2015) highlights successful case studies and examples of ways state CWSRF programs can prioritize green infrastructure projects for funding by implementing priority point systems, program set-asides and marketing strategies for state programs.</p> <p>For more information, see the <i>“Green Infrastructure Policy for the Clean Water State Revolving Fund Program (PDF)”</i> fact sheet (2016).</p>	<ul style="list-style-type: none"> ■ Prineville, OR, needed to increase its wastewater treatment capacity. After receiving a grant to study a pilot wetland for wastewater treatment, the city designed the 120-acre Crooked River Wetlands Complex to reduce instream water temperature and augment stream flow to meet the effluent limits in its NPDES wastewater permit. The project included over 2 miles of riparian improvements and 5.4 miles of new recreational trails and serves as an outdoor classroom. In addition, the wetland wastewater treatment system cost \$54 million less than the projected cost of a new treatment facility. ■ Hoboken, NJ, received \$4.2 million in low-interest CWSRF financing from the New Jersey Environmental Infrastructure Financing Program to establish a citywide stormwater management campaign and green infrastructure initiative. The funding established two parks to better handle stormwater flows, including underground detention systems, permeable paving, rain gardens and bioswales. The one- and 6-acre parks provide green space while also filtering and diverting up to 1.2 million gallons of stormwater runoff to the city’s sewer system for treatment.
<p>Water Infrastructure Finance and Innovation Act (WIFIA)</p>	<p>WIFIA is a federal credit program administered by EPA for eligible water and wastewater infrastructure projects, including stormwater and green infrastructure projects.</p>	<ul style="list-style-type: none"> ■ In 2018, the WIFIA program invited 39 entities with projects in 16 states and Washington, DC, to apply for more than \$5 billion in WIFIA loans. Several of the selected projects include stormwater: <ul style="list-style-type: none"> – In February 2020, the Coachella Valley, CA, Stormwater Channel Improvement Project received a \$59 million loan through the WIFIA program to make stormwater channel improvements to increase capacity to capture and convey stormwater, reduce stormwater runoff to the surrounding areas, and help the district meet design standards. – The City of Indio, CA, and parts of the unincorporated county were invited to apply for \$29 million in funding for a 3.3-mile regional stormwater channel conveyance facility to manage and capture stormwater and reduce reoccurring runoff and debris. – DeKalb County, GA, was invited to apply for \$251 million in funding to rehabilitate and repair an aging wastewater collection and treatment system to comply with its December 2011 Sanitary Sewer Overflow Consent Decree.

U.S. Environmental Protection Agency (EPA)

Program	Program Description	Examples of Funded Projects
Brownfields Grants	The Brownfields Program provides direct funding for brownfields assessment, cleanup, revolving loans, environmental job training, technical assistance, training and research.	Cincinnati's South Fairmount/Lick Run Project used the Brownfields and Land Revitalization Program to fund the Lick Run Watershed Strategic Integration Plan. The plan provides an "implementation road map" that outlines opportunities associated with a green infrastructure approach. EPA is working with other federal partners to leverage investments in the South Fairmount community (e.g., housing development, floodplain management, transportation improvements).
Section 319 Nonpoint Source Grant Program	Grant Program funding goes to states to reduce nonpoint source pollution (pollution caused by rainfall running over the ground and carrying pollutants including trash, oil and grease, and fertilizers into nearby waterways). EPA's most recent program guidance recognized the "importance of green infrastructure... in managing stormwater" and supported awarding funding to green infrastructure projects.	The District of Columbia Department of Energy and Environment used Section 319 funding to partially fund remediation of the Watts Branch watershed in northeast D.C.. Watts Branch suffered from severe erosion and sediment pollution due to frequent flooding. The Department led a project to restore the stream bed and control flooding using tree and shrub plantings, regrading of the stream bed, and upstream LID practices to manage impervious surface runoff.
Urban Waters Small Grants Program (UWSG)	Program funding goes to communities to improve the quality of urban waters while simultaneously stimulating neighborhood revitalization. The Urban Waters Small Grants Program has a focus on underserved communities, defined as "communities with environmental justice concerns and/or susceptible populations." The Program can be used specifically for innovative or new green infrastructure practices that improve water quality. State, local and tribal governments; universities; and nonprofit organizations are eligible to apply.	<ul style="list-style-type: none"> ■ The Constitutional Rights Foundation, in partnership with Los Angeles Waterkeeper and University of California, Los Angeles (UCLA), was awarded over \$59,000 to work with four high schools in Los Angeles County. College-aspiring students were taught how to collect data related to trash and industrial stormwater pollution. Seniors from UCLA's environmental sciences bachelor's program served as peer mentors and role models for participants and at the end, students presented their findings. ■ Heal the Bay was awarded \$60,000 to monitor bacterial water pollution at two recreational zones in the Los Angeles River. Water quality is made available to the public in an annual River Report Card. Results of the study will be used to make recommendations to agencies and watershed stakeholders for improving water quality and protecting public health.
Drinking Water State Revolving Loan Fund (DWSRF)	The DWSRF is a low-interest revolving loan program to help water systems and states achieve the health protection objectives of the Safe Drinking Water Act.	Baltimore, MD, used DWSRF funding to replace an existing open finished reservoir with a new enclosed 35-million-gallon reservoir, which was covered with a green roof to improve water runoff quality and reduce runoff volume.
Superfund Program	Superfund sites placed on the National Priorities List are eligible for federal funding for site cleanup, resilience and green remediation.	The Butterworth #2 Landfill Superfund site is in Grand Rapids, MI, where landfill operations contaminated ground water and soil. After cleanup was done, the city held public meetings to work with community and recreation organizations on reuse planning. In 2009, the city extended a bike trail across the site. EPA has also worked with the city to evaluate the site's capacity to support a solar energy facility. The solar redevelopment is currently on hold as the city is reevaluating power needs for its wastewater treatment plant.

U.S. Department of Housing and Urban Development (HUD)

Program	Program Description	Examples of Funded Projects
Community Development Block Grant (CDBG)	<p>CDBG is designed to create jobs, increase economic activity and increase property values. Green infrastructure and stormwater projects fit in this scope, because urban tree planting can increase economic activity in a commercial district and green infrastructure can increase property values by mitigating flooding and improving neighborhood aesthetics.</p>	<ul style="list-style-type: none"> ■ Detroit, MI, used \$8.9 million in CDBG funds in 2014 to create a major flood prevention and economic development program. The program is used for demolishing blighted properties, landscapes and plants trees on 200 vacant lots to improve stormwater management and neighborhood aesthetics, and installing infrastructure that directs stormwater to new bioretention basins. ■ Chicago, IL, used CDBG funding to put a new green roof on its historic Cultural Center.
Section 108 Loan Guarantee Program	<p>This program allows future CDBG allocations to be used to guarantee loans for neighborhood revitalization projects, including construction and installation of public facilities and infrastructure. Section 108-guaranteed projects can incorporate green infrastructure into their design and construction.</p>	<p>Through a CDBG loan, the City of Indio, CA, has been able to allocate funding to the design, engineering and construction of public infrastructure improvements in its low- and moderate-income neighborhoods. Residents help prioritize the improvements. Activities have included tree planting and street, sidewalk and park improvements.</p>
Community Development Block Grant—Disaster Recovery (CDBG-DR)	<p>This program provides federal aid to states post-disaster. Funds can be used for a variety of community development activities that benefit low- and moderate-income people, reduce blight, or address an urgent community need. In rehabilitating housing and constructing public amenities, cities may be able to incorporate green infrastructure techniques (like street trees and permeable pavements) in street design.</p>	<p>Columbia, SC, received a \$19.99 million grant from CDBG-DR following a 1,000-year flood in October 2015. Through the grant, Columbia was able to help the city recover and build resiliency. Among other projects, the CDBG-DR funds were used to promote green infrastructure such as swales and rain gardens, planting buffer areas around water courses, promote pervious parking surfaces, and encourage preservation of sensitive environmental areas.</p>
Sustainable Communities Regional Planning Grants	<p>These grants support metropolitan and multijurisdictional planning efforts to integrate housing, land use, economic and workforce development, transportation, and infrastructure investments. They are designed to empower jurisdictions to consider the interdependent challenges of economic competitiveness and revitalization, social equity, inclusion and access to opportunity, energy use and climate change, and public health and environmental impacts.</p>	<p>The Green Infrastructure and the Sustainable Communities Initiative report provides case studies of 30 local governments that have used HUD Sustainable Communities Regional Planning Grants or Community Challenge Planning Grants to fund green infrastructure programs. Generally, grantees have planned for climate resilience by identifying strategic areas to implement stormwater BMPs with a dual approach to stormwater management that uses both traditional gray infrastructure and green infrastructure.</p> <p>Although the HUD Sustainable Communities Initiative grant programs have not received appropriations since 2011, the case studies provide excellent examples of how local governments can combine various funding streams to pay for green infrastructure programs.</p>

U.S. Department of Housing and Urban Development (HUD)

Program	Program Description	Examples of Funded Projects
Community Challenge Planning Grants	These grants foster reform and reduce barriers to achieving affordable, economically vital, sustainable communities. Such efforts may include amending or replacing local master plans, zoning codes and building codes, either on a jurisdiction-wide basis or in a specific neighborhood to promote mixed-use development, affordable housing, the reuse of older buildings for new purposes, and similar activities that promote sustainability at the local or neighborhood level.	The City of Pittsburgh, PA, combined a HUD Community Challenge Planning Grant with a USDOT TIGER II grant to fund the planning of the Allegheny Riverfront Green boulevard project.

U.S. Department of Homeland Security, Federal Emergency Management Administration (FEMA)

Program	Program Description	Examples of Funded Projects
Hazard Mitigation Grant Program (HMGP)	<p>HMGP provides post-disaster federal aid to states to mitigate the risks of future disasters and fund flood mitigation projects, including acquisition and relocation of flood-prone properties and soil stabilization projects like the installation of vegetative buffer strips.</p> <p>Accounting for the full benefits of green infrastructure projects under HMGP has been much easier since FEMA amended its policy to include “ecosystem services” benefits for green open space, riparian areas and other land use types.</p>	New Orleans, LA, used HMGP funding for its post-Katrina rebuilding process, including the reconstruction of the city’s stormwater infrastructure. The New Orleans stormwater plan calls for a significant expansion of green infrastructure to manage the city’s chronic flooding. As part of the HMGP process, the city needed to demonstrate potential flood losses avoided and account for green infrastructure’s other environmental benefits.
Pre-Disaster Mitigation Grant Program (PDM)	PDM offers funding for sustained pre-disaster natural hazard mitigation programs. The goal is to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on federal funding in future disasters. This program awards planning and project grants and provides opportunities for raising public awareness about reducing future losses before disaster strikes. Mitigation planning is a key process used to break the cycle of disaster damage, reconstruction and repeated damage. PDM grants are funded annually by Congressional appropriations and are awarded on a nationally competitive basis.	Spokane County, WA, often has heavy rainstorms, and post-storm flash flooding is common. In 2016, the county was awarded PDM funding to improve road drainage to Hazard Road, northwest of the City of Spokane, after a flash flood washed out a section of the roadway the year before. The flood damaged a section of the road with 14 culverts. Instead of simply repairing or replacing the culverts, the county’s PDM application called for a combination of “gray” and “green” techniques, including adding vegetation to stabilize soil against erosion and to improve the health of the stream. By incorporating green approaches, the project kept costs lower than simply replacing the culverts would have, stabilized the soil against erosion, and improved the health of the stream. The county’s decision to include green infrastructure mitigation elements is ultimately what allowed the project to be funded by FEMA.

U.S. Department of Homeland Security, Federal Emergency Management Administration (FEMA)

Program	Program Description	Examples of Funded Projects
Flood Mitigation Assistance (FMA) Grant Program	<p>The FMA program aims to reduce or eliminate claims under the National Flood Insurance Program (NFIP). FMA provides funding to states, territories, federally recognized tribes and local communities for projects and planning that reduce or eliminate long-term risk of flood damage to structures insured under NFIP. FMA funding is also available for management costs. Funding is appropriated by Congress annually.</p> <p>FMA requires state, tribal and local governments to develop and adopt hazard mitigation plans as a condition for receiving certain types of non-emergency disaster assistance, including funding for Hazard Mitigation Assistance (HMA) projects. Generally, local communities will sponsor applications on behalf of homeowners and then submit the applications to their states. All FMA grant applications must be submitted to FEMA by a state, U.S. territory or federally recognized tribe.</p> <p>Refer to the current HMA guidance for detailed information on the FMA program and on the mitigation plan requirement.</p>	<p>In fiscal year 2018, \$1.6 million in FMA was available to help state, tribal, territorial and local governments reduce or eliminate claims under NFIP.</p> <p>Eligible project activities included:</p> <ul style="list-style-type: none"> ■ Infrastructure protective measures. ■ Floodwater storage and diversion. ■ Utility protective measures. ■ Stormwater management. ■ Wetland restoration/creation. ■ Aquifer storage and recovery. ■ Localized flood control to protect critical facility. ■ Floodplain and stream restoration. ■ Water and sanitary sewer system protective measures.

U.S. Department of Defense, Army Corps of Engineers

Program	Program Description	Examples of Funded Projects
Planning Assistance to States (PAS)	The Corps of Engineers can provide states, local governments, other non-federal entities and eligible tribes with help in preparing comprehensive plans for the development, utilization and conservation of water and related land resources. Typical studies are only at the planning level of detail; they do not include detailed design for project construction. The program can encompass many types of studies dealing with water resources issues. Types of studies conducted in recent years under the program include water supply/demand, water conservation, water quality, environmental/conservation, wetlands evaluation/restoration, dam safety/failure, flood damage reduction, coastal zone protection and harbor planning. Efforts under this program are cost shared on a 50 percent federal–50 percent non-federal basis. The study sponsor has the option of providing in-kind services for its share of the study cost.	In 1999, the Corps was authorized to study the Boston, MA, Muddy River to determine if flood risk management and environmental restoration improvements were in the federal interest. Following the Corps' 2001 draft evaluation report, environmental dredging of sediment, preservation and restoration of historic park shorelines, and preservation vegetation in construction areas were recommended.

U.S. Department of Transportation

Program	Program Description	Examples of Funded Projects
Better Utilizing Investments to Leverage Development (BUILD) grant program	<p>BUILD funds investments in road, rail, transit and port projects. These grants have been awarded to projects that included green infrastructure components.</p> <p>These grants were previously known as Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grants.</p>	In 2018, the Siouxland Regional Transit System in Sioux City, IA, was awarded \$7 million to construct a new facility for bus maintenance and storage. The facility will also include green building materials and techniques such as stormwater retention, reuse of natural rainwater for irrigation, and water recycling for restrooms and bus washing.
Federal Highway Administration (FHWA) Surface Transportation Block Grant (STBG) Transportation Alternatives Set-Aside	STBG provides funding for “transportation alternatives,” including “off-road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation.” STBG funding could be used to pay for green infrastructure components of trails and sidewalks such as permeable pavements.	The Southeast Michigan Council of Governments used the transportation alternatives set-aside in STBG funding in 2015 from the State of Michigan to fund the Detroit–Inner Circle Greenway Railroad Acquisition, which included 1) installation of green infrastructure such as green streets and bioretention and 2) repurposing of 8.3 miles of abandoned railway near Detroit.

U.S. Department of Transportation

Program	Program Description	Examples of Funded Projects
FHWA Congestion Mitigation and Air Quality Improvement Program (CMAQ)	CMAQ allocates federal funding for infrastructure projects that reduce congestion and improve air quality. Bicycle transportation and pedestrian walkways are eligible uses of the money; they can be designed to include green infrastructure features, such as permeable surfaces for trails, and bioswales and bioretention for areas adjacent to trail surfaces.	The City of Santa Fe's Acequia Trail Underpass project used CMAQ funding in 2017/18 via NMDOT to construct a bicycle underpass (along an abandoned rail line) under federal highway US 284/85 to improve safety of pedestrians and bicyclists crossing one of the city's busiest and most congested intersections. The work installed LID drainage basins that capture and infiltrate 100 percent of the onsite stormwater up the 100-year storm, as well as other green infrastructure elements such as soil-enhanced swales and landscaping to improve site permeability.
FHWA National Highway Performance Program (NHPP)	NHPP supports the national highway system in constructing new facilities and ensuring that investments of federal aid funds in highway construction are directed to support progress toward the performance targets in a state's asset management plan. States may transfer up to 50 percent of NHPP funds to STBG, HSIP and CMAQ (see above for more details).	

U.S. Department of Agriculture

Program	Program Description	Examples of Funded Projects
Rural Development Water and Environmental Programs (WEP)	WEP is exclusively focused on the water and waste infrastructure needs of rural communities with populations of 10,000 or less. The programs provide technical assistance and financing for development of drinking water, waste disposal and stormwater systems in rural areas.	In 2016, the Pine Ridge Indian Reservation, SD, was awarded \$1.97 million for a new community center, which is the first phase of a three-part solution to improve environmental and human health, increase jobs, and make housing more affordable. Included in the master plan is to use potable water more productively by embedding strategies in streets and buildings to collect rainwater for use. Additionally, the plan will implement roadside bioswales, culverts, raingardens and storm drain inlets.
Rural Development Water and Waste Disposal Loan and Grant Program	This program provides funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and stormwater drainage to households and businesses in eligible rural areas.	The City of Bowdle, SD, received a \$1.172 million loan and a \$400,000 grant for improvements to the water and sewer collection system. The city will replace outdated water and sewer lines along Main Street. This is to help address inflow and infiltration caused by deficiencies in the sewer system and replace outdated waterlines. Local funds will also be used.
U.S. Forest Service Urban and Community Forestry (UCF) Program	UCF is a cooperative program that focuses on the stewardship of urban natural resources, providing grants for urban forestry projects.	Campbell Creek, which flows from the Chugach Mountains to Cook Inlet through the heart of Anchorage, AL, creates a 70-square-mile watershed that is home to five species of salmon, rainbow trout, moose, bears and beavers. The loss of vegetation and pervious surfaces, as well as polluted runoff, degrade aquatic and wildlife habitat and increase flooding risks. Anchorage is reconstructing the trail with help from UCF, presenting a perfect opportunity to share resources to restore the riparian area and create low-impact access.

U.S. Department of the Treasury

Program	Program Description	Examples of Funded Projects
New Markets Tax Credit program	This program encourages private investment in a range of project types in distressed areas (e.g., real estate or business development projects). Awards are allocated to nonprofit and private entities based on their proposals for distributing the tax benefits.	In 2013, a nonprofit investor partnered with The Freshwater Trust to finance a project that restored 30 miles of streamside vegetation in Oregon. This green infrastructure solution created shade and offset the increasingly warm temperature of the river, which was negatively affecting native fish populations.

U.S. Department of Energy

Program	Program Description	Examples of Funded Projects
Energy Efficiency Savings—Tax Incentives and Rebates	Green infrastructure can be integrated into project design to claim tax incentives and rebates.	Eugene, OR, built a new biofuel station on an abandoned gas station site that included a green roof, bioswales and rain gardens. Nearly \$250,000 worth of tax credits reduced income and sales tax for the private company that built and operated the project. Eugene, OR, built a new biofuel station on an abandoned gas station site that included a green roof, bioswales and rain gardens. Nearly \$250,000 worth of tax credits reduced income and sales tax for the private company that built and operated the project.
Weatherization and Intergovernmental Program (WIP)	WIP provides grants, technical assistance and information tools to states, local governments, community action agencies, utilities, tribes and U.S. territories for their energy programs. The funding can be used to encourage installation of green infrastructure—such as green roofs—as part of the weatherization process.	Through the Better Buildings Challenge, the Silver Spring, MD, multifamily residential building, The Pearl, has been designed to include 1,250 square feet of vegetated green roof with a solar photovoltaic array uniquely integrated. This design is projected to save over \$150,000 annually in energy costs.

U.S. Department of the Interior, National Park Service

Program	Program Description	Examples of Funded Projects
Rivers, Trails and Conservation Assistance (RTCA) Program	RTCA assists community-led natural resource conservation and outdoor recreation initiatives. RTCA staff provide guidance to communities on conserving waterways, preserving open space, and developing trails and greenways.	The communities of Midlothian, Oak Forest and Crestwood, IL, received funding to prepare the Natalie Creek Trail from Oak Forest into Blue Island. The trail proposal came out of Midlothian's planning to alleviate flooding through a Metropolitan Water Reclamation District project (now underway). This regional trail will have both on-road and off-road sections connecting five Illinois communities.

U.S. Department of Commerce

Program	Program Description	Examples of Funded Projects
Economic Development Administration: Public Works and Economic Adjustment Assistance programs	These programs support a range of business and industrial development activities—including infrastructure development—that create or retain jobs. EDA-capitalized revolving loan funds encourage new business development in economically distressed communities.	In September 2019, EDA awarded a \$1.8 million grant to the city of West Plains, Missouri, to make critical infrastructure improvements, including constructing stormwater detention basins to help protect the local business community from flooding.
National Oceanic and Atmospheric Administration: Community-Based Restoration Program	This program, which began in 1996, seeks to inspire and sustain local efforts to restore coastal habitat. It has funded more than 2,000 projects in the United States, Canada, the Caribbean and the Pacific Islands that have restored more than 86,000 acres of habitat and opened more than 3,800 stream miles for fish passage.	Ducks Unlimited was awarded \$825,000 to restore estuarine and coastal dune habitat in California. The project will restore more than 800 acres of Eel River estuary habitat to help recover Endangered Species Act-listed salmon. The project will also increase resilience to storm events and sea level rise, reestablish a healthy ecosystem, and provide habitat for juvenile migratory fish to grow.
National Oceanic and Atmospheric Administration: Coastal Resilience Grants Program	This competitive grant program funds projects that are helping coastal communities and ecosystems prepare for and recover from extreme weather events, climate hazards and changing ocean conditions. All project proposals undergo a rigorous merit review and selection process by a panel of subject matter experts from across the United States that include representatives of government, academia and private industry.	The Northeast Regional Association of Coastal and Ocean Observing Systems was awarded \$456,257 in match grants to document and predict coastal storm impacts and increase the implementation of sustainable, nature-based infrastructure approaches (living shorelines). The project also fills high-priority data and capacity gaps, develops tools for decision-making, and improves communications and outreach.



