5

TRANSPORTATION AND GREEN INFRASTRUCTURE

Image 5.1 Lloyd Noland Parkway

FAIRFIELD CONNECTIONS

The community prioritizes livability in Fairfield, which requires transportation to provide access to education, jobs, goods, services, worship and recreation. The patterns of circulation affect the quality and the safety of streets and neighborhoods. Dependable transportation helps with growth and economic success in urban settings like Fairfield. All of this together increases the livability of the place. This chapter provides strategies and actions for addressing transportation deficiencies and improving the overall travel conditions in the City of Fairfield.

Because Fairfield is built out, a priority for transportation enhancement is multimodal connections. Since the development of the Corey master plan in 1910, the tree-lined streets were a part of the public amenity with sidewalks and parkways. More recently, the Auburn Urban Studio developed a concept plan for refurbishing those streets and connecting both sides of Aaron Aronov, and the parks, schools, and recreational amenities with a strong multimodal network. See Figure 5.1 Auburn Greenways Plan.

Today the Freshwater Land Trust's Red Rock Ridge and Valley Trail System Master Plan has similar goals in creating and enhancing the pedestrian and bicycle network in Fairfield. The Fairfield Trail is a connector that includes sharrows and sidewalks and connects downtown to Western Hills Mall, Forest Hills, the High Ore Line Greenway, and Glen Oaks. (Freshwater Land Trust, 2010) See Figure 5.2 RRRVTS Routes.

Figure 5.1 Auburn Greenways Plan

ACTIVE TRANSPORTATION & TRANSIT

GOAL 6
ENABLE THE FULL RANGE OF MOBILITY CHOICES, INCLUDING PRIVATE AUTOMOBILES, TRANSIT, BIKING AND WALKING.

The Birmingham region is developing an extensive bike and pedestrian trail network that should be leveraged within Fairfield. Making the necessary connections to the system will encourage active transportation, and the health benefits that accompany it, by enabling residents to use bicycles and walking as a more significant method of transportation. The city should also prioritize strengthening the connection to the Birmingham-Jefferson County Transit Authority (BJCTA) transit network to expand affordable, healthy transit options for residents.

ACTION 16

Work with partners to construct segments identified in the Red Rock Ridge and Valley Trail System as funding becomes available.

Safe multimodal connections are a critical component of an equitable transportation system. Most of the existing sidewalks in Fairfield are within the downtown area and the residential area near Miles College, totaling approximately 50 roadway centerline miles. Rather than construct new sidewalks and bicycle lanes in an ad hoc manner, this plan recommends prioritizing segments identified in the Red Rock Ridge and Valley Trail System (RRRVTS) Master Plan.

The RRRVTS is a 750-mile trail master plan for Jefferson County. The elements of the RRRVTS consist of shared use trails to accommodate bicyclists, pedestrians and other non-motorized trail users. In addition, sidewalks and bike lanes are designed to stretch into communities and neighborhoods and improve access to these main trails.

The RRRVTS master plan calls for several segments in Fairfield. Table 5.1 RRRVTS Fairfield Segments lists the proposed trail segments and the network of proposed segments is shown on Figure 5.2 RRRVTS Routes. Within Fairfield there are three types of segments:

- **Sidewalk with sharrow**: a sharrow is a shared lane marking located on low-volume neighborhood streets, and includes both sharrow pavement markings and signage to mark the route for shared access to cars and bicycles. A sidewalk is added on one or both sides of the road.
- **Greenway**: an paved path in a dedicated easement that can be donated or purchased, an existing utility easement, or a permanent easement granted by a property owner. The costs associated with the facility include site work, paving, signs, site furnishings and pavement markings. Lighting can be included as well.
- **Rail-to-trail greenway**: a greenway located on rail beds. These usually cost less to develop since much of the needed site work was done with the original rail work. These also follow populated areas and city centers providing excellent connectivity.

Constructing segments of the RRRVTS provide recreational opportunities for Fairfield residents. In particular, the High Ore Line is quickly becoming a popular route to Red Mountain Park, and the RRRVTS includes a section of this route. The RRRVTS would also offer practical routes for Fairfield residents to walk or bike to and from work, home, and school. As funding becomes available, it is recommended that the City prioritize constructing segments identified in the RRRVTS master plan that are proposed for Fairfield.

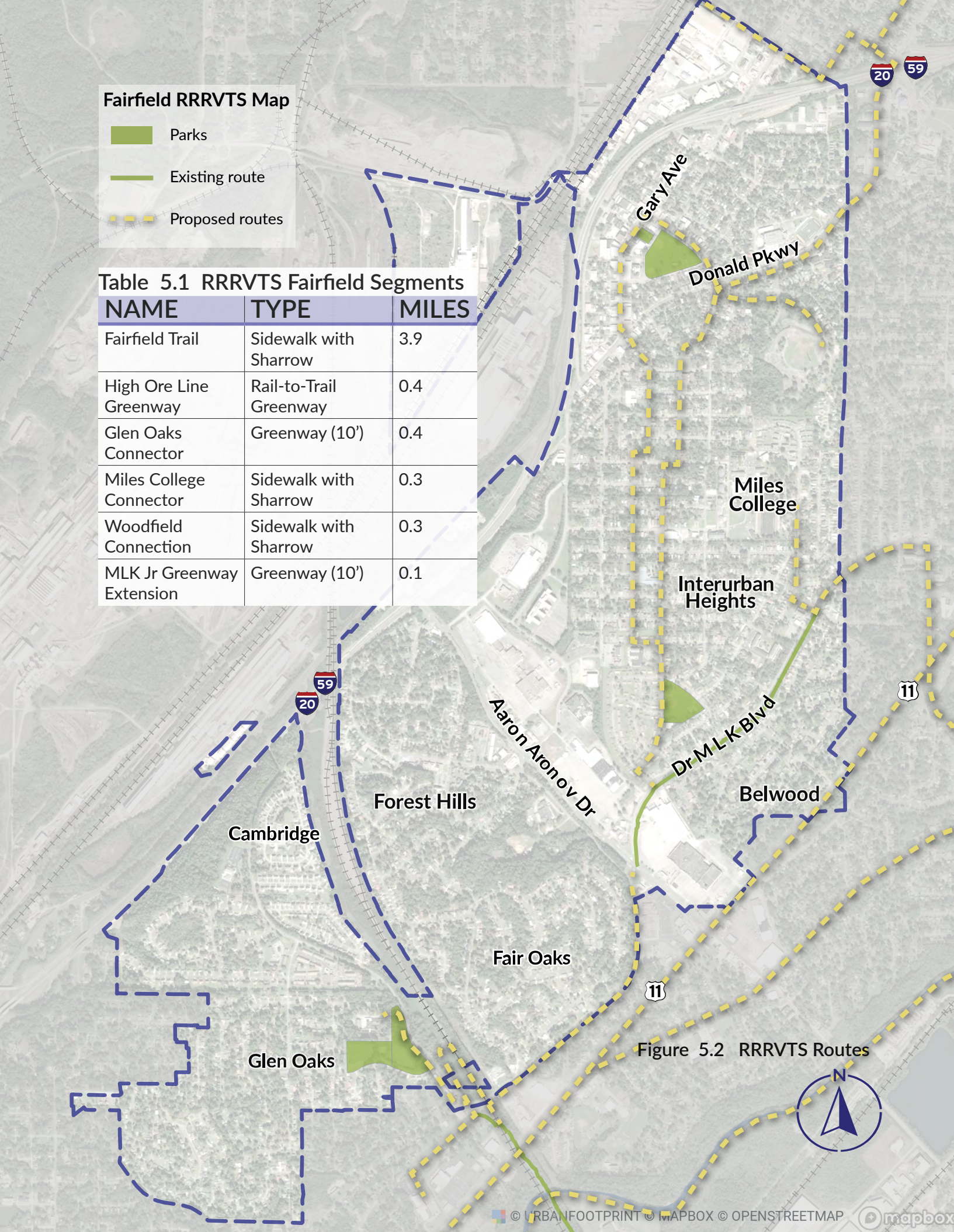


Table 5.1 RRRVTS Fairfield Segments

NAME	TYPE	MILES
Fairfield Trail	Sidewalk with Sharrow	3.9
High Ore Line Greenway	Rail-to-Trail Greenway	0.4
Glen Oaks Connector	Greenway (10')	0.4
Miles College Connector	Sidewalk with Sharrow	0.3
Woodfield Connection	Sidewalk with Sharrow	0.3
MLK Jr Greenway Extension	Greenway (10')	0.1

Figure 5.2 RRRVTS Routes

ACTION 17

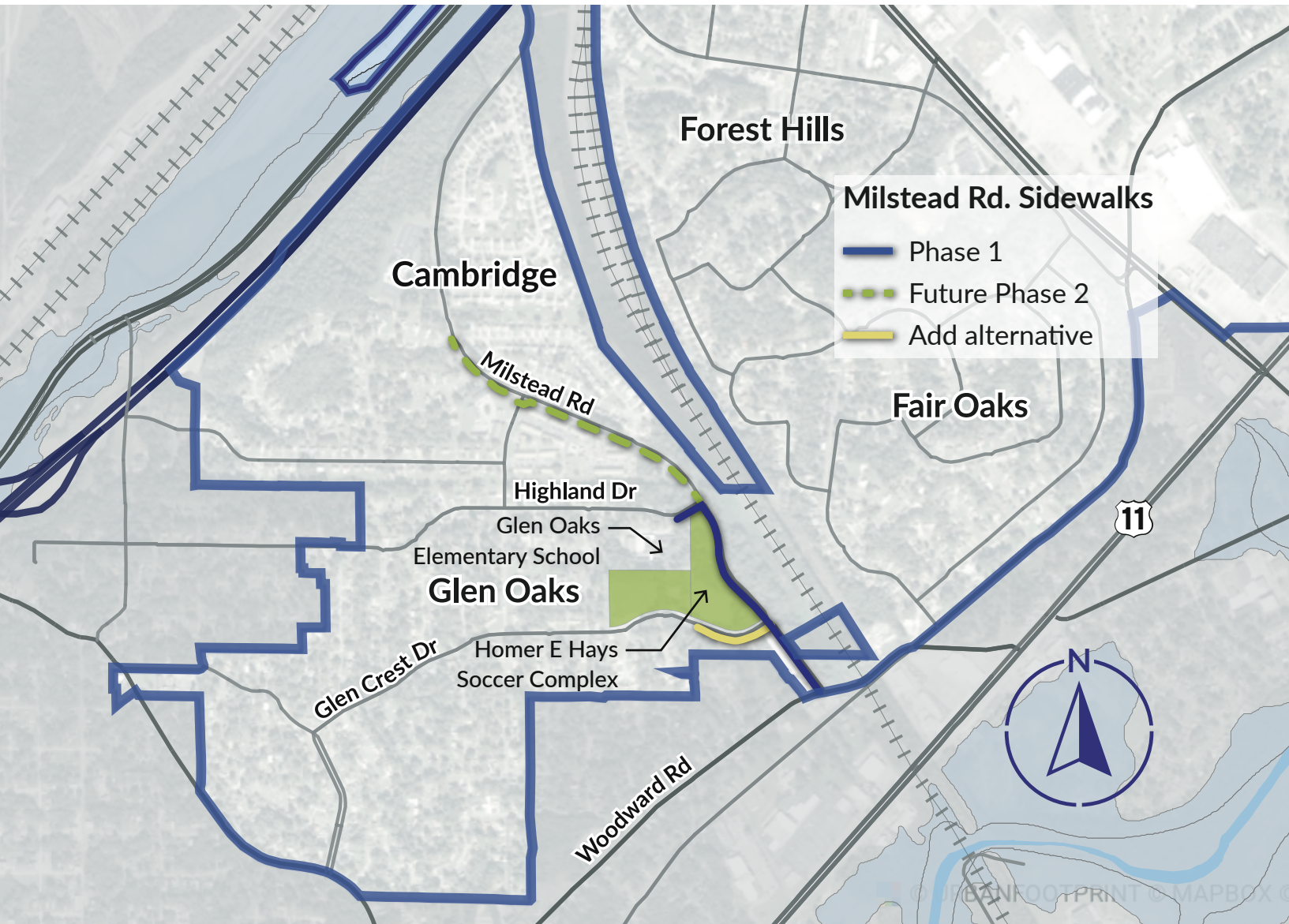
Seek funding for the proposed Milstead Road sidewalk project.

In summer 2021, the City of Fairfield was awarded a Transportation Alternatives Program (TAP) grant through ALDOT for a sidewalk project along Milstead Road. Phase 1 is proposed to begin at Woodward Road and continue to Highland Drive to connect to Glen Oaks Elementary School. A future Phase 2 is proposed to tie into Phase 1 and continue from Glen Oaks Elementary School along Milstead Road to the intersection of Milstead Road, Oak Hill Road, and Red Oak Circle. A third segment is proposed along Glen Crest Road, connecting the Homer E. Hayes Soccer Complex to Phase 1 at Milstead Road. Including all phases, the project includes 2,330 linear feet of five-foot sidewalk. Figure 5.3 shows these proposed segments in context.

The TAP grant requires a 20% local contribution from the City of Fairfield. According to current estimates, Fairfield's share of the project cost would be over $250,000.

The Phase 1 segment mirrors the Glen Oaks Elementary Connection proposed as part of the Red Rock Ridge and Valley Trail System (RRRVTS). (For more information about the RRRVTS, please see Action 16 .) While the RRRVTS proposes a ten-foot greenway for this segment, the City of Fairfield is encouraged to pursue funding for the existing TAP grant to better provide safe pedestrian connections throughout Fairfield and to Glen Oaks Elementary School and the Homer E. Hayes Soccer Complex.

Figure 5.3 Milstead Rd. Sidewalk Project



ACTION 18

Continue to support transit access to Fairfield.

Bus service through the Birmingham Jefferson County Transit Authority (BJCTA) MAX Transit service was restored in 2019 with a recent contract for service through October 2022. Route 5 provides service from downtown Birmingham through Ensley and Fairfield to Western Hills Mall and Route 45 provides service from downtown Birmingham along Dr. M.L.K. Blvd., with a stop at Western Hills Mall, and continuing on Hwy 11 to Bessemer, Figure 5.4. Work with BJCTA to update the route information on maxtransit.org to reflect the reintroduction of the Rt. 5 bus service through Fairfield.

Figure 5.4 BJCTA MAX Routes through Fairfield

COMMUTESMART

Did you know you can get paid to commute to work? If you get to work by any means other than driving by yourself, you can!

People like options. When it comes to getting to work, having options that reward you is even better. The demand for attractive commuting alternatives to driving alone continues to grow significantly. CommuteSmart is a federally-funded initiative of the Regional Planning Commission of Greater Birmingham that formed in 1999 to promote alternative commuting options for the Birmingham area.

CommuteSmart partners with organizations throughout the Birmingham region to reduce traffic congestion and improve air quality by encouraging workers to use alternative commuting options. These options include walking, biking, carpooling, vanpooling, riding the bus and even working from home. The program is designed to work with commuters and employers to make changing commute to work habits less intimidating. It offers incentives and services to help ease your transition from driving alone to a cleaner commute. By signing up with CommuteSmart, you could earn $1 per day (up to $70) in the first 90 days for getting to and from work (or class) in any way other than driving alone. After that, participants can earn a $25 gift card for continuing to take alternative commutes at least 20 times each quarter afterwards.

Through CommuteSmart, you can reduce traffic, improve air quality, and strengthen the community. Visit www.commutesmart.org to learn more.

GOAL 7
PRIORITIZE TRANSPORTATION MAINTENANCE AND IMPROVEMENT INVESTMENTS.

ACTION 19

Create a proactive street resurfacing program that emphasizes preventative maintenance.

To ensure public improvements are prioritized in the most effective and comprehensive way, the city should conduct a street needs assessment. This takes into account all of the existing infrastructure conditions and results in a list of improvement priorities.

Currently, the Public Works Department repairs damage to road surfaces and conducts repaving, but there is not a formal method for identifying the timing of the maintenance and rehabilitation needs. While this is a standard municipal practice, there are more effective methods of proactively managing maintenance needs in a way that will save money over time. One method is a pavement management program.

A pavement management program creates an plan for improving the integrity of local streets over the long term through preventative maintenance, while reducing the costs of deferred maintenance. Preventative maintenance means applying the right treatment on the right street at the right time, regardless of whether that street is currently in the worst condition of all local roads. Because preventative maintenance is more cost effective than reconstructing a failed street, a pavement management program saves dollars in the long run.

The program could utilize a pavement rating system, such as Pavement Surface Evaluation and Rating (PASER) or Pavement Condition Index (PCI). This keeps an inventory of all streets, and periodically evaluates the conditions. Finally, the conditions are used to set maintenance priorities and alternative treatments, rather than simply fixing the oldest or worst first.

ACTION 20

Create and annually update a Local Transportation Plan to receive Rebuild Alabama Act funds.

The 2019 Rebuild Alabama Act levied an additional 10-cent gas tax to help fund local road projects and clear the backlog of state highway projects. Every municipality in Alabama is eligible for a portion of the proceeds of this new levy, and the portion will vary with the size of the municipality. If Fairfield maintains a Local Transportation Plan and annually updates it with current priority road projects, this will establish eligibility for the Rebuild Alabama funds.

The city should develop a Local Transportation Plan before the beginning of each fiscal year that specifies how the city will use the revenues on the maintenance, improvement, replacement and construction of streets and roads in order to access Fairfield's Annual Allocation from the Rebuild Alabama Act. See more under Rebuild Alabma on page 80.

Image 5.2 52nd St. pavement condition

REBUILD ALABMA

For decades, Alabama's ability to maintain its transportation infrastructure has been declining. While maintenance and construction costs have dramatically risen, the state's primary source of revenue – the gas tax – has steadily dwindled beneath the dual pressures of inflation and improving vehicle fuel efficiency. To address the growing annual shortfalls, Governor Kay Ivey in March 2019 signed into law the Rebuild Alabama Act. This law incrementally raises the state gas tax from 18 cents per gallon to 28 cents per gallon by 2022. Expected to generate around $300 million annually, these new revenues will help the state, county, and local governments begin to clear the long backlog of deferred infrastructure maintenance.

Since most traffic occurs on State-owned roads (Interstate, Federal, and State highways), ALDOT will receive two-thirds of the proceeds from the new gas tax. However, the law also establishes three new methods of dispersing the revenue to individual municipalities such as Fairfield for the upkeep of their own infrastructure:

- **Annual Allocation** – Under the law, every municipality in Alabama will receive an annual share of the gas tax proceeds in proportion to their population and the mileage of roads within their corporate limits. Fairfield's share was approximately $52,000 in Fiscal Year 2020 and will increase to $88,000 by Fiscal Year 2022. In order to receive its allocation, however, Fairfield must adopt a Local Transportation Plan before the beginning of each Fiscal Year that specifies how it will use the revenues, see Action 20. The allocation must be kept in a separate fund and can be spent only on the maintenance, improvement, replacement and construction of streets and roads. More information about annual allocations and associated requirements can be found at https://www.alabamacounties.org/rebuildal/.

APPROXIMATELY $88,000 IN REBUILD ALABAMA FUNDS WILL BE AVAILABLE TO FAIRFIELD FOR STREET MAINTENANCE BY 2022.

- **Alabama Transportation Rehabilitation and Improvement Program** – II (ATRIP-II) is an ALDOT-administered grant program that will fund projects of local interest on state-maintained roads. In Fairfield's case, this would apply to U.S. 11 within the city limits. Funds for the grant program will come from the state's own share of the gas tax revenues, and will amount to at least $30 million each year. More information on how Fairfield can apply for ATRIP-II funds can be found at https://www.dot.state.al.us/atrip2/.

- **Rebuild Alabama Act Annual Grant Program** – Similar to the ATRIP-II program, the Rebuild Alabama Act (RAA) Annual Grant Program is an ALDOT-administered grant program for projects of local interest. Unlike ATRIP-II, however, these funds are not restricted to state-owned roads, but can be used on any functionally classified road in a city. Funds for the grant program will come from the state's own share of the gas tax revenues, and will amount to at least $10 million each year. More information on how Fairfield can apply for RAA Annual Grant funds can be found at https://www.dot.state.al.us/RAgrantprogram/.

ACTION 21

Enforce access management standards to preserve traffic flow and reduce accidents along Aaron Aronov Drive, Valley Road west of 59/20, and Veterans Memorial Drive.

All properties require access to a road through a driveway. Each driveway, however, creates a potential conflict point where vehicle paths cross, merge, or weave. High concentrations of driveways along a road lead to high numbers of conflict points, which cause safety hazards and slow down traffic unnecessarily. Managing access – i.e., reducing the frequency of conflict points along a stretch of road – not only improves safety for motorists and pedestrians, it assures safe access to and from streets by emergency vehicles and improves the capacity of the road by preserving steady traffic flow. Fairfield should enforce and update access management standards to preserve the safety and efficiency of its transportation network.

Image 5.3 Access – before consolidation (RPCGB)

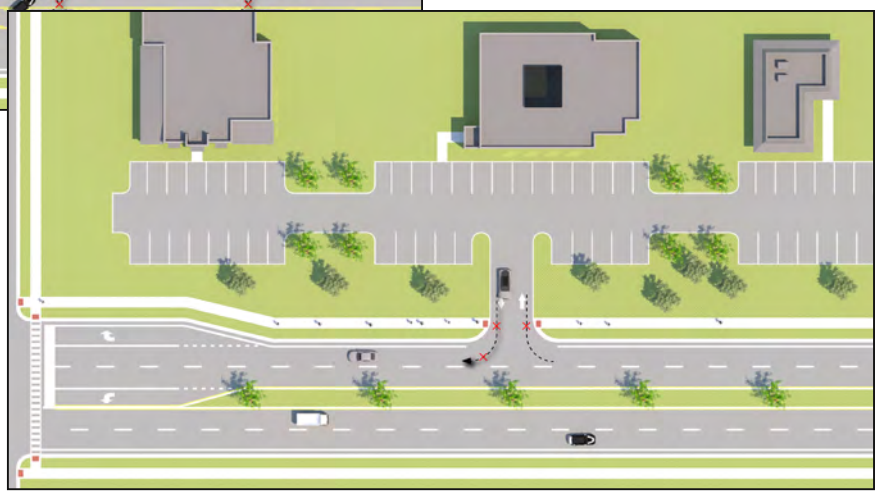


Image 5.4 Access – after consolidation (RPCGB)

By consolidating the number of intersections along a street, access management dramatically reduces the number of potential crash locations while improving traffic flow and aesthetics. In this example, consolidating driveways and adding a median reduced 30 conflict points to only 3 — a 90% reduction.

Historic planning methods of using alleys to access parking in the rear of buildings create inherently safer environments. There are only two points of access, one at either end of the block, rather than a curb cut for each property.

ACCESS MANAGEMENT

TRAFFIC CALMING

The key to slowing traffic is street design, not speed limit signs. Motorists will drive as fast as a road's design will allow. Inappropriately high speeds not only lead to more frequent and severe crashes for the motorists, they also endanger pedestrians and other vulnerable road users. Traffic calming refers to a combination of physical measures that reduce (i.e., "calm") the negative effects of motor vehicle use. Restricting the speed and volume of traffic to acceptable levels helps reduce accidents, collisions, noise, vibration, pollution and crime.

Traffic calming retrofitting measures include both intrusive and non-intrusive strategies. Intrusive strategies involve an alteration to the physical environment that constrains driver behavior, such as horizontal shifts (on-street parking and median islands), vertical deflections (speed tables, speed bumps and raised intersections) and turn restrictions, which reduce cut-through traffic. Non-intrusive strategies involve administrative or operational improvements, such as traffic cameras, radar speed display signs and pavement restriping.

Slowing traffic saves lives. Each 1-mph reduction in vehicle speed reduces collisions and fatalities by over 5%. A motorist traveling at 40 mph who sees a pedestrian 100 feet ahead will not be able to stop in time, colliding with the pedestrian at 38 mph. At this speed, the pedestrian is highly likely to suffer a serious injury or die. By contrast, a motorist traveling at 25 mph would have enough time to stop before collision. 9 out of 10 pedestrians survive being hit by a vehicle traveling at 20 mph. 1 out of 10 pedestrians survive being hit by a vehicle traveling at 40 mph.

Each traffic calming measure is better suited to some street types than others. The city should work with traffic engineers to evaluate the streets where residents have expressed safety concerns, and determine whether and what traffic calming measures are warranted.

Table 5.2 Traffic Calming Performance

MEASURE	SPEED REDUCTION	COST
Speed Table	7 – 9 mph	$5,000 – 15,000
Speed Bump	5 – 8 mph	$2,000
Raised Median Island	4 mph	$6,000 – 9,000
Traffic Circle	4 – 7 mph	$3,000 –10,000

Image 5.6 Speed Table (WBAY)

Image 5.5 Raised Median Island (Dan Burden)

Image 5.7 Traffic Circle (Twitter)

ACTION 22

Prioritize traffic calming measures, particularly leading into Miles College.

Residents expressed concern over cars speeding through the neighborhood along 59th Street. Speed bumps may be the first reaction to needed traffic calming, but because of the long-term required maintenance, noise, altered traffic flow, and reduced emergency speeds, they are not the best method.

Horizontal deflections are usually as effective with fewer negative impacts. Chicanes may be used along the length of the block and traffic circles at the intersections. Neither of these solutions cause the negative effects of the speed bumps, including dramatic deceleration and acceleration, along with the accompanying noise and air pollution.

One of the simplest horizontal deflections is the use of on street parking. This can effectively create a chicane with the removal of the yellow paint on the curbs and will require no maintenance. Removal of the yellow paint also addresses residents' concerns over the limited access to their homes created by the removal of on street parking. (Daisa, J.M., & Peers, J.B. (1997). NARROW RESIDENTIAL STREETS: DO THEY REALLY SLOW DOWN SPEEDS? https://nacto.org/wp-content/uploads/2015/04/narrow_residential_streets_daisa.pdf)

There are some changes that have been made to the historic streets west of the college, which contribute to dangerous speeding:

- Street trees are almost completely absent and there are very few yard trees.
- Yellow curbs have been painted throughout, limiting parking to only one side of the street.
- One-way streets have been introduced.

These are anti-traffic-calming measures because they detract from an active, diverse roadway, which signals to drivers to slow down and pay attention to their surroundings. The typical three foot wide tree lawn is difficult for street trees. The lack of large street trees induces speeding, and the lack of shade is hard on pedestrians and parked cars, and contributes to urban heat island effects. (Eisenman, T.S..; Coleman, A.F..; LaBombard, G. Street Trees for Bicyclists, Pedestrians, and Vehicle Drivers: A Systematic Multimodal Review. Urban Sci. 2021, 5, 56. https://doi.org/10.3390/urbansci5030056)

The typical street section is 24' wide from curb to curb and is a common historic street width. This is traditionally a yield street with parking allowed on each side, providing protection for pedestrians and promoting slower, safer driving speeds. A yield street requires oncoming cars to yield to each other, finding a place to pull over between parked cars, and significantly reducing travel speeds. The stop-sign--controlled intersections are good as they contribute to safer driving speeds and safer pedestrian crossings at intersections.

The recommendation is to revert back to the character of the original historic streets by:

- Removing the yellow paint on curbs, which will allow parking on both sides of the street.
- Converting the one-way streets back to two-way.
- Starting a neighborhood tree planting program with the goal of a big tree in every front yard planted 4' behind the sidewalk. The focus of this program should begin on 59th and 56th Streets and expand outward.

Image 5.8 59th Street (Google)

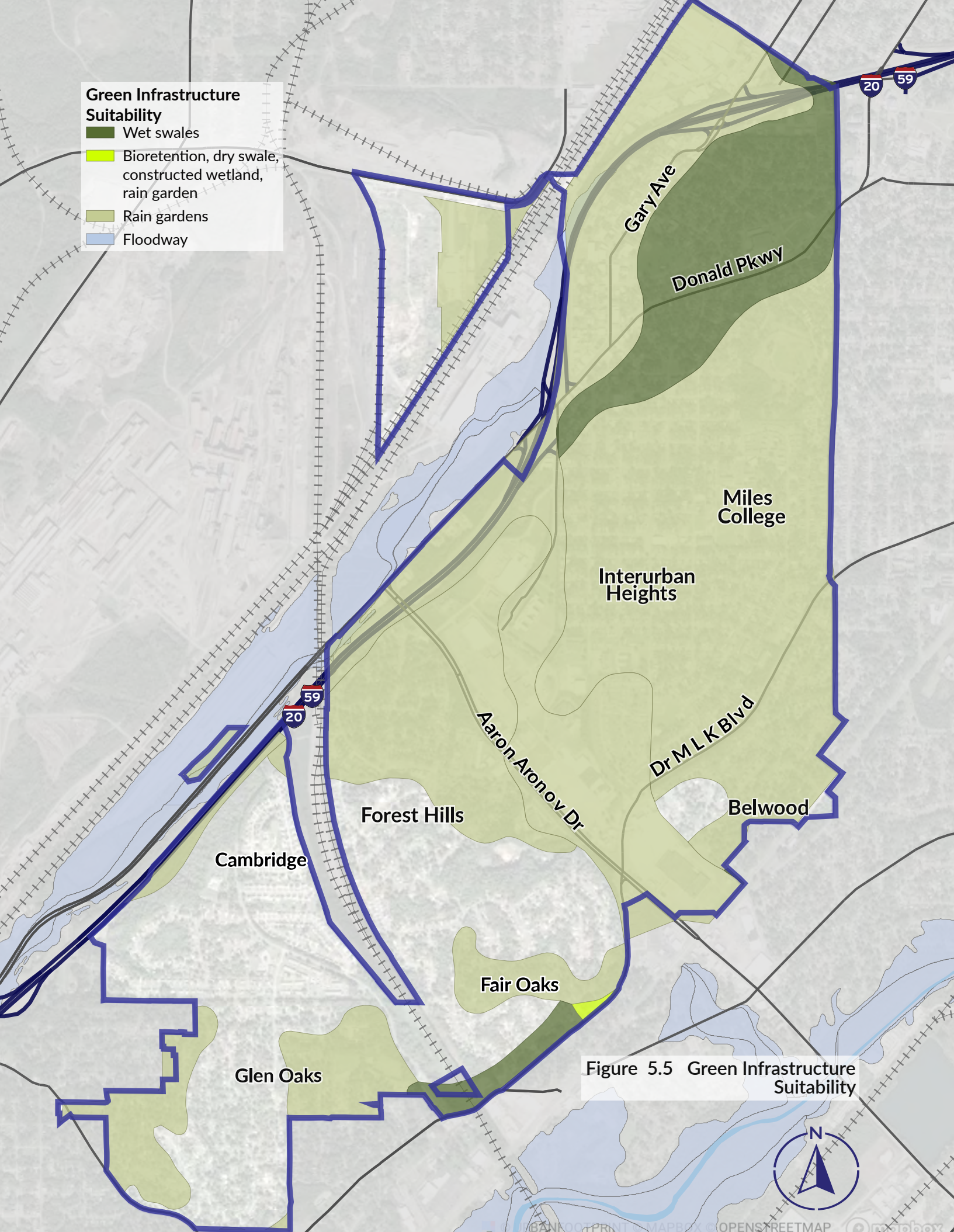


Figure 5.5 Green Infrastructure Suitability

GOAL 8
RESTORE AND SUSTAIN WATER QUALITY BY INCORPORATING BEST PRACTICES FOR ENVIRONMENTAL DESIGN AND STORMWATER MANAGEMENT.

The idea of green infrastructure originated from landscape design of the 19th century including parks, trail systems, gardens, and other natural landscape features that provide benefits for people and the environment. These elements are essential to the original Corey master plan designed by George H. Miller, a reflection of early 20th century City Beautiful principles including tree-lined avenues and parks.

Holistically, green infrastructure refers to a system of interconnected ecosystems and built infrastructure providing contextual social, environmental, and technological functions and benefits. This includes trees, rain gardens, other stormwater facilities, blue-green corridors, and green roofs. Green infrastructure benefits include water quality, recreation, health, city livability, and property value. Social, environmental, economic, 'built environment' (sewer or transportation system), and ecological benefits are significant and extensive. (Grabowski, 2022)

Analysis of soils and slopes in Fairfield shows where various types of interventions are appropriate in different areas, see Figure 5.5. Rain gardens are appropriate in the majority of Fairfield, wet swales in a large area southeast of downtown, but several types of infrastructure are suitable in a smaller portion of the Fair Oaks neighborhood.

The growth policies enabled by this master plan generate water and stormwater benefits. Taking credit for the work a community is already doing can be a low-cost and practical approach to meeting water quality goals and regulatory commitments. (U.S. EPA & Nisenson, 2005) Public health is also improved by green infrastructure. Urban trees remove enough particulate matter from the air to create up to $60 million worth of reductions in healthcare needs at the city level. (The Nature Conservancy, 2017) Street trees are an essential part of green infrastructure and are also used in Action 22.

ACTION 23

Build rain gardens and add openings to existing or new curbs.

Fairfield residents experience basement flooding during storm events, due to topography and the age of the stormwater infrastructure. While green infrastructure cannot fully address this issue, it can help reduce the frequency and severity of these events. Curb openings can feed stormwater into rain gardens between the curb and the sidewalk, or between the curb and front lawns reducing the flows from streets to homes.

There are some opportunities for "Simple Green Streets". Where there are no trees in a six-foot wide landscape strip, the strip can be scooped out, slots cut in the curbs, trees and landscape planted in the new bioswale, like Image 5.9 Simple green street retrofit. Green streets could restore the historic amenity of tree-lined public spaces to the city while assisting with stormwater management.

ACTION 24

Incentivize green parking solutions.

Green parking incorporates permeable paving materials, tree planting, and rain gardens, improving water quality and reducing the urban heat island impact. New development or redevelopment that requires parking lots should be incentivized to consider green parking solutions by reducing the required parking spaces if they use that area for green solutions.

ENVIRONMENTAL BEST MANAGEMENT PRACTICES

Environmental Best Management Practices are used to mitigate the effects of development and redevelopment, including targeted reductions in pollutants to waters, stormwater runoff, and stream erosion. In developed areas, impervious surfaces such as pavement and roofs prevent water from naturally soaking into the ground. Instead, water runs rapidly into storm drainage systems and natural streams causing flooding, stream bank erosion, sediment, habitat destruction, sewer overflows, infrastructure damage, and contaminated streams, rivers, and other water bodies. Impervious surfaces also reduce recharge of groundwater, which, during drought, reduces the base flow discharge into rivers and streams that maintains water levels. Environmental Best Management Practices help to mitigate this effect by incorporating systems that allow infiltration, evapotranspiration, and re-use of stormwater to maintain natural hydrology. Careful management of surface runoff to groundwater should be considered to protect the city's drinking water source because they could inject pollutants. The best practices listed below are referenced from the City of Baltimore's Green Pattern Book and from the U.S. Environmental Protection Agency. (City of Baltimore, MD, 2014)

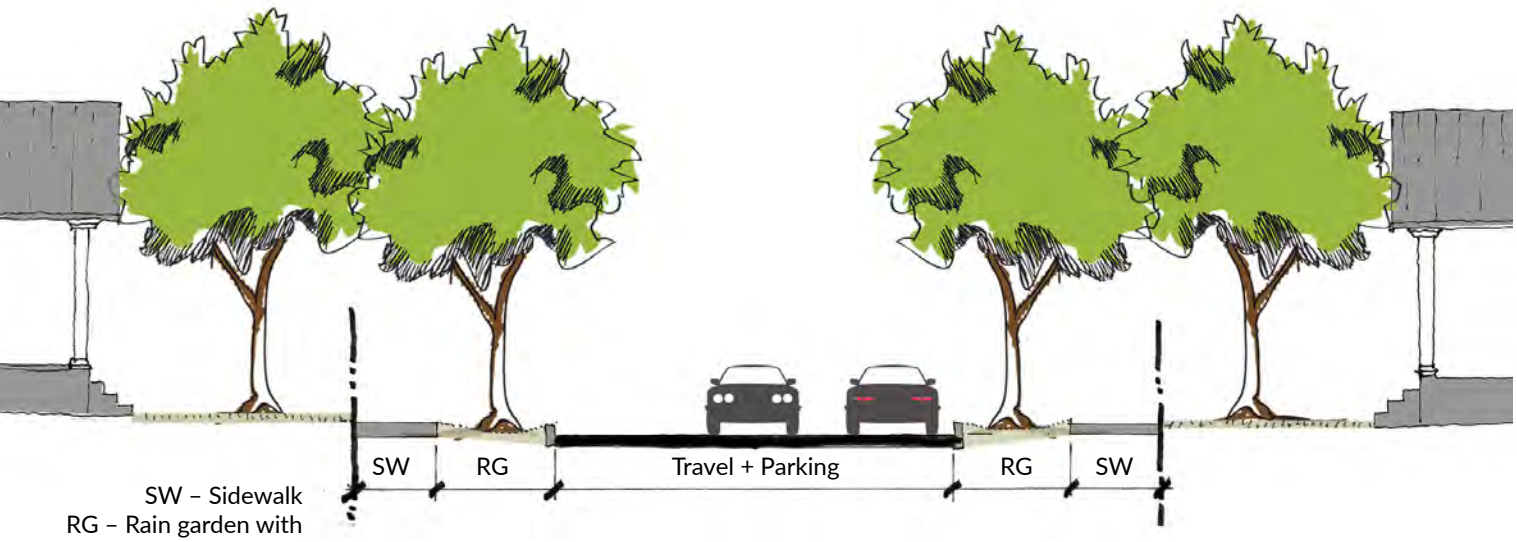


Image 5.9 Simple green street retrofit

1

RAIN GARDENS

Rain gardens are shallow, vegetated basins that collect and absorb runoff from rooftops, sidewalks and streets. Native shrubs, perennials, and flowers are planted in a small depression, which is generally formed on a natural slope designed to temporarily hold and soak in rain water. Rain gardens typically store water only during and following a rainfall event. Because they drain within 12-48 hours, they prevent the breeding of mosquitoes.

The rain gardens are used as a Low Impact Development (LID) stormwater management solution that promotes evapotranspiration, which is the effort of evaporation and transpiration to remove water from the soil and vegetation. These gardens are typically smaller and simpler than a bioretention system – they are less than 2,000 square feet in size and do not include an under-drain. Rain gardens are versatile features that can be installed in almost any unpaved space.

Rain gardens are easier to install and maintain than most of the other solutions. They can be used in most soils and along many streets in Fairfield.

Image 5.10 Rain garden (aces.edu)

2

BIORETENTION

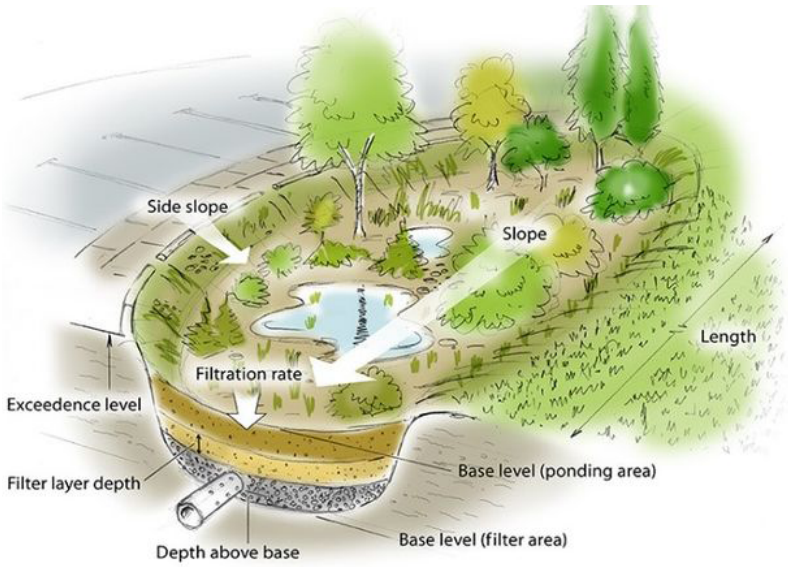


Image 5.11 Bioretention diagram (epa.gov)

The bioretention process utilizes a bed of sand, soil, and plants to filter contaminants and pollutants from stormwater runoff. Although water may briefly pond during heavy rain events, bioretention areas are designed to be dry most of the time. The filtered stormwater is either returned to a storm drain through an under-drain or partially infiltrated into the soil. Like rain gardens, bioretention areas are usually vegetated. Each of the components of the bioretention area is designed to perform a specific function. The grass buffer strip reduces incoming runoff velocity and filters particulates. The sand bed also reduces the velocity, filters particulates, and spreads flow over the length of the bioretention area. Aeration and drainage of the planting soil are provided by the sand bed. The ponding area provides a temporary storage prior to evaporation or infiltration. Particulates not filtered out by the grass or the sand settle within the ponding area.

This is a larger, more expensive solution, so is a good consideration for areas with large parking demand that would otherwise use detention basins. This should be a considered for any new development or any significant redevelopment.

3

GREEN PARKING

Image 5.12 Green parking (epa.gov)

Green parking lots incorporate one or more green tools, such as permeable paving materials, recycled rubber pavers, tree planting, rain gardens or more extensive bioretention systems.

By providing opportunities to infiltrate stormwater, these technologies help to remove pollutants, replenish groundwater resources and reduce the risk of flooding and stream channel erosion. The trees in green parking lots provide shade and reduce the heat island effect. Permeable pavement alternatives are not as strong as conventional types of pavement, but when properly installed and maintained, they can last for over 20 years. Because green parking lot design often reduces or eliminates curbing, costs can be reallocated to plant materials and trees as well as potential cost savings.

Green parking would provide residents, faith--based organizations, and businesses additional parking that cannot otherwise be accommodated on the street or one's property. New development or redevelopment that requires parking lots should be encouraged to consider green parking solutions. One possible incentive to the developer is to reduce the required spaces if they use that area for rain gardens.

4

PLANTER BOXES

Urban rain gardens with vertical walls and open or closed bottoms that collect and absorb runoff from sidewalks, parking lots, and streets are called planter boxes. They are an attractive tool for filtering stormwater as well as reducing the runoff that goes into the sewer system.

This green infrastructure is ideal for space-limited sites in dense urban areas and serve as a streetscape element creating a greener and healthier appearance of the built environment by providing space for plants and trees near buildings and along streets.

There are three main types of planter boxes which can be used on sidewalks, plazas, rooftops, and other impervious areas: contained (12" to 18" deep with weeping holes), infiltration (18" to 24" deep with graded stone aggregate bottom to aid infiltration), and flow-through (3' deep with pipe to disposal for overflow).

This intervention is more costly to install and maintain, but is a good solution for limited spaces like much of the historic downtown Fairfield.

Image 5.13 Green planters (epa.gov)

5

BIOSWALES

Bioswales, often found along curbs and in parking lots, use vegetation, mulch, or xeriscaped channels to slow and filter stormwater flows. These channels provide treatment and retention as they move stormwater from one place to another. Vegetated swales slow, infiltrate, and filter stormwater flows. As linear features, vegetated swales are particularly suitable along streets and parking lots.

The grassed swale can remove sediments and other pollutants and provides some infiltration into the soil. A drawback, however, is that they can be ineffective at treating and absorbing runoff during a larger rain event.

Bioswales are one solution that can be included in the green parking strategy.

Image 5.14 Dry swale (epa.gov)

6

PERMEABLE PAVEMENT

Image 5.15 Permeable paving (epa.gov)

Paved surfaces that infiltrate, treat, and/or store rainwater where it falls. Permeable pavements are constructed from pervious concrete, porous asphalt, permeable interlocking pavers, and several other materials. Pervious concrete is an innovative technology to filter stormwater, while providing a solid base for sidewalks, roadways and other hardscapes.

Historically brick pavement was permeable with gaps between the bricks. While the pavements are more expensive to install, they can be added incrementally. They also can be maintained more easily, with just the necessary pavers being replaced as needed.