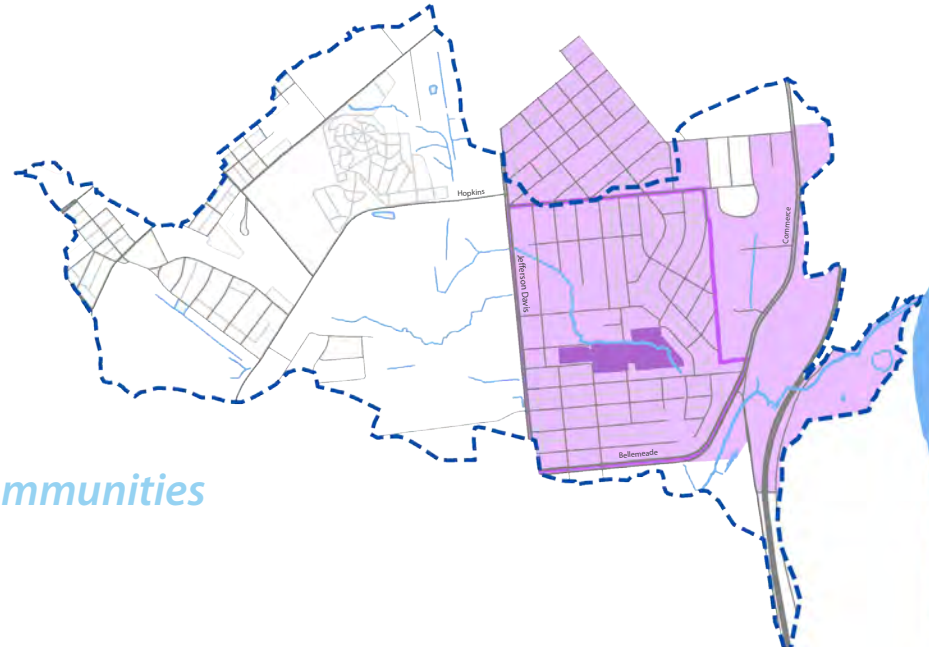
BELLEMEADE WALKABLE WATERSHED



healthy waters : healthy communities

Richmond, Virginia 2012

project background

Over the past year, the City of Richmond, the Green Infrastructure Center (GIC) and Skeo Solutions have partnered to bring together community members, nonprofit organizations and business leaders to develop a Watershed Concept Plan for restoring the water quality and community health in the Bellemeade neighborhood.

The Bellemeade neighborhood suffers from decades of disinvestment. Home to approximately 5,000 residents, the Bellemeade neighborhood currently lacks sidewalks, adequate drainage infrastructure and recreational amenities.

The community is bisected by an impaired and neglected urban creek. If restored, the creek could serve as a revitalizing force bringing the community together around the adjacent school and community center to improve neighborhood health.

Educating children today can help to ensure that the watershed is taken care of in the future. The Watershed Concept Plan was developed on a unique framework that identifies strategies within the "schoolshed" and the watershed to improve the health of the creek and the community. Goals of this effort include:

Connectivity – connect the neighborhood to the creek and the James River.

Safe Passage – improve walking routes to the community center and new school.

Water + Environment – slow, infiltrate and clean rain water.

Open Space – develop a sense of community around the creek and new school.

Education + Awareness – create outdoor education opportunities.

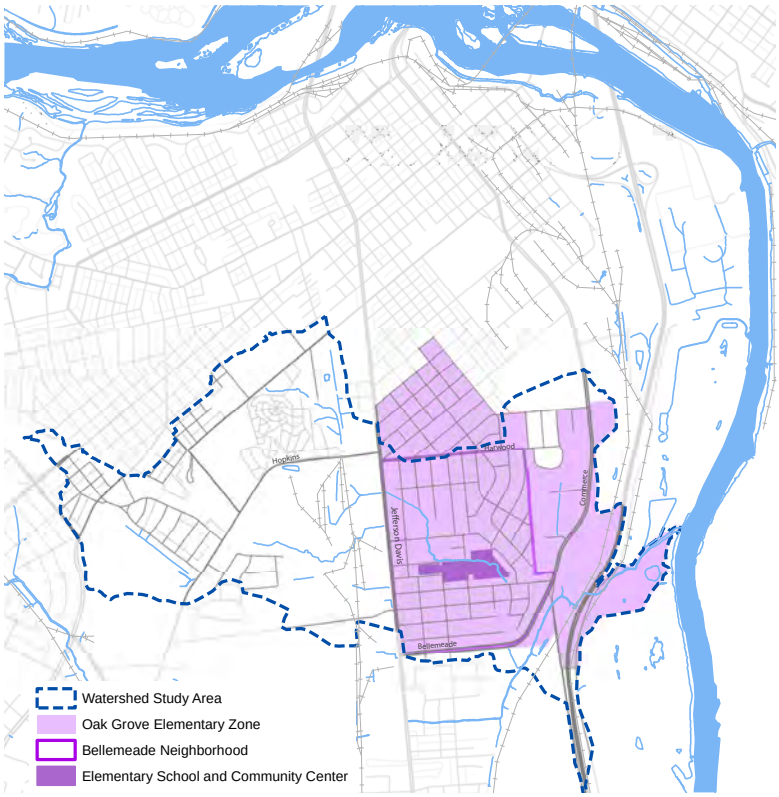
watershed + schoolshed

A walkable watershed integrates the flow of water and people into a cohesive strategy to improve the overall health of the community. In the Bellemeade neighborhood, water moves through a series of ditches, open stream channels and underground pipes. Challenges include erosive flows, flooding issues and pollution.

The new elementary school (under construction) and Bellemeade Community Center provide destinations and an opportunity to improve pedestrian flow through the neighborhood. A lack of sidewalks and safe crossing points and poor visibility currently make it difficult for people to walk.

Watershed: The City of Richmond is developing a Stormwater Master Plan to improve water quality, mitigate flooding and reduce stream bank erosion. The Watershed Concept Plan will inform the Stormwater Master Plan and assist in prioritizing capital investments over time to help infiltrate and clean stormwater.

Schoolshed: The neighborhood is home to the new elementary school, which sits adjacent to the neighborhood community center and the Bellemeade tributary of Goodes Creek.



A watershed is the area of land where all of the water drains to a water body. In urban areas, a storm system – or a series of underground pipes, open stream channels and ditches – are also part of the watershed. The blue dashed line on the map above indicates the Goodes Creek watershed.

"The new Oak Grove-Bellemeade Elementary School will stand as a beacon in our community, lighting the way for new hope and prosperity.

I envision the new school as a silent teacher; its beauty wrapped around educational programs that will teach the whole child and support the needs of the community."

Jannie Laursen, Principal of Oak Grove-Bellemeade Elementary School

community outreach

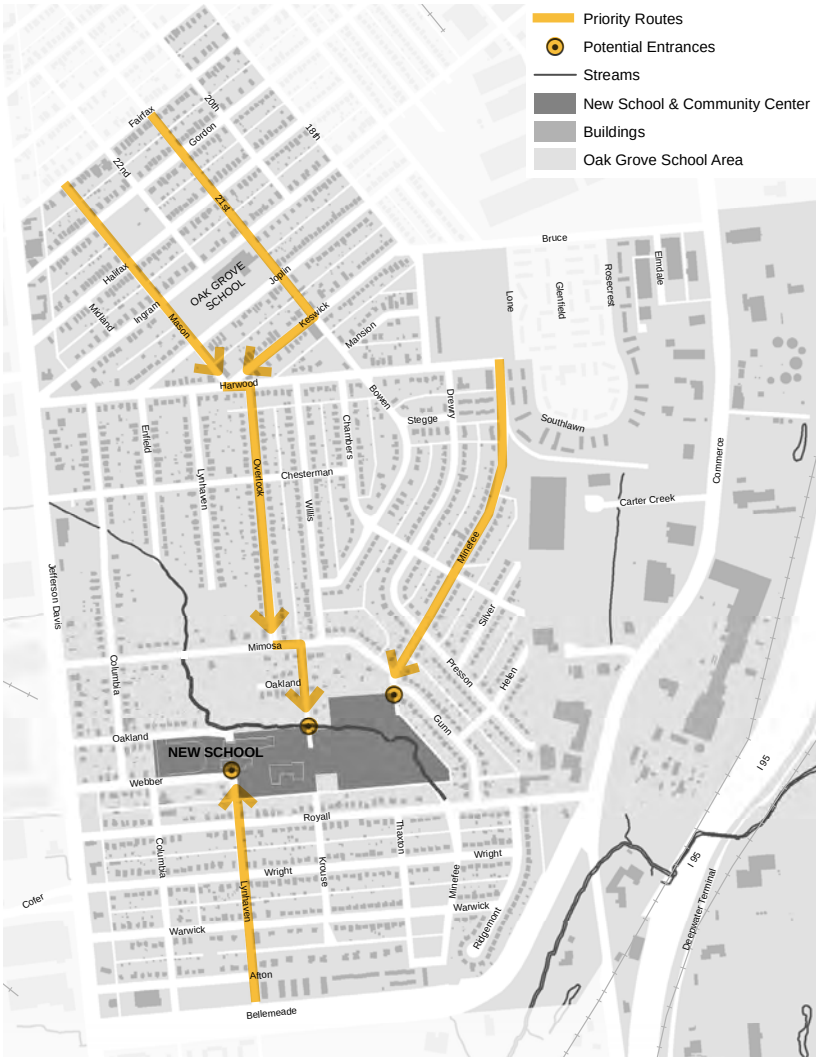
The purpose of the Bellemeade Walkable Watershed project has been to identify watershed strategies based on technical analysis and community needs. A community tour and workshop in October 2011 brought together residents, community leaders and organizations, city staff, elected officials and local stakeholders to develop a shared vision and priorities to improve watershed and neighborhood health. Ideas from the workshop were presented at a public open house in December 2011. The planning process has resulted in significant partnership building, community engagement and strong support for moving the Bellemeade Watershed Concept Plan into action.

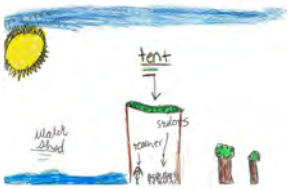
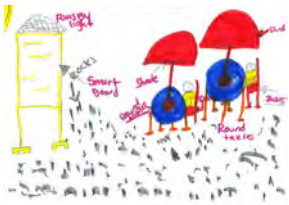
Community workshop

student leadership

A group of fifth-grade students participated in the community tour, workshop and open house to share their ideas on preferred walking routes (below) and outdoor education opportunities at their new school (lower right). The priority routes selected by the students informed the concept plan and strategies outlined in the following pages.

Community tour



CONCEPT PLAN

goals

Building on input from the community workshop and public open house, the Watershed Concept Plan includes six main goals. Each goal has a series of strategies outlined below, illustrated on the concept plan (adjacent page) and then described in detail on following pages.

1. Connectivity p. 6

Green Streets
Create green streets on primary school routes.

Regional Connector
Connect to regional trails and to the James River.

Creek Crossings
Improve creek crossings at Overlook and Minafee.

Culvert Crossings
Add sidewalks, creek signage and overlooks to culvert improvements.

2. Safe Passage p. 7

Sidewalk Improvements
Provide sidewalks on primary routes.

Street Lighting
Improve lighting along routes.

Bicycle Access
Install bike-friendly paths along primary routes.

Safe Intersection
Design and construct safe intersections.

3. Water + Environment p. 8

Street Plantings
Install plantings to slow and clean rain water.

Stream Stabilization
Restore stream banks and channel.

Creek Bed Restoration
Restore creek corridor.

Stormwater Infiltration
Infiltrate rain water along trails and in parks.

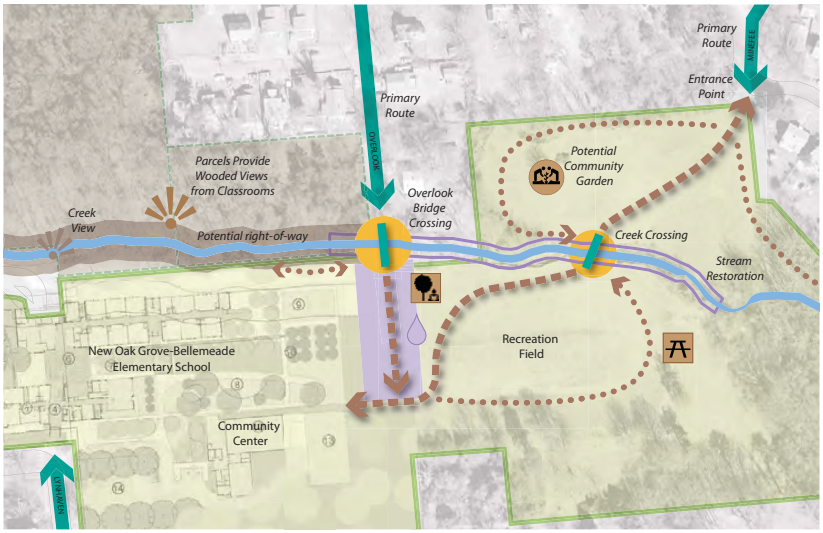
4. Open Space p. 9

Neighborhood Park
Provide community access and amenities.

Pocket Park
Promote community activity along school routes.

Regional Park
Support regional park and infiltration opportunities.

Designated Paths
Connect paths for walking and exercise.



The strategies highlighted in the park property above reflect community priorities for creating a neighborhood center of activity and watershed stewardship.

5. Education + Awareness p. 10

Nature Trails
Develop watershed trails with signage.

Outdoor Classrooms
Provide outdoor learning activities for students.

Wooded Views
Retain wooded views for classrooms.

Community Garden
Promote community gardening for school and community.

6. Activities + Programs p. 11

Events and Activities
Encourage outdoor activity and promote a sense of community through stewardship.

Education and Recognition
Celebrate and learn about the neighborhood and the environment.

New elementary school, community center + park property
Walking times from new school (five-minute increments)
Neighborhood streams
Homes within Oak Grove elementary zone
20 min
15 min
10 min
5 min
Oak Grove Playground
Former School
Hillside Court
New School
Center
Park Property
To James River Branch Rail-Trail
To James River
Dinwiddie
Edwards
Fairfax
Gordon
Halifax
Mason
Midland
Ingram
Joplin
Keswick
Mansion
Lemoine
Bruce
Harwood
Southlawn
Lone
Glenfield
Rosecrest
Elmdale
Stegge
Chambers
Chesterman
Overbrook
Wills
Bowen
Dewey
Mimosa
Oakland
Webber
Royall
Kouse
Thaxton
Regemont
Wright
Warwick
Afton
Bellemeade
Commerce
Columbia
Lynhaven
Elfield
Jefferson Davis
Cofer
Carter Creek
Silver
Helen
Curn
Preston
Mimosa
Meadow

CONNECTIVITY

goal

Connect the neighborhood to the creek and the James River.

situation

Pedestrian movement through and within the neighborhood is challenging due to the lack of sidewalks, arterial crossings (such as Jefferson Davis Highway and Commerce Road), poor visibility, safety concerns and lack of access across the creek.

The Three C's to Achieve Walkability[1]

Connection: Ensure that walking and biking routes connect key local points, such as public transit stops, schools, work, and cultural destinations, and provide connections to key regional networks.

Comfort: Walking and biking routes should provide high quality, safe and enjoyable experiences.

Convenient: Routes should be direct and designed for the convenience of pedestrians and cyclists, including those with impaired mobility.

The strategies below incorporate the three C's to provide opportunities to connect the neighborhood to the creek and school, the proposed James River Branch Rail-Trail and the James River.

strategies

Green Streets

Create green streets with drainage, sidewalk and landscape improvements on primary school routes, including Lynhaven, Mason, Overlook and Minafee. Integrate drainage and pedestrian improvements into street design and construction – considering the whole width and length of the right-of-way where feasible.

Regional Connector

Connect the neighborhood to the proposed James River Branch Rail-Trail (see diagram to the right) by improving sidewalks and crossings along Wright and Chesterman.

Evaluate options for connecting the neighborhood to the James River in the future. Route could eventually connect to the James River Trail system.

Creek Crossings

Improve creek crossings at Overlook and within the park property near the recreation field. Integrate community amenities such as benches, bike racks and a rain garden at creek crossings.

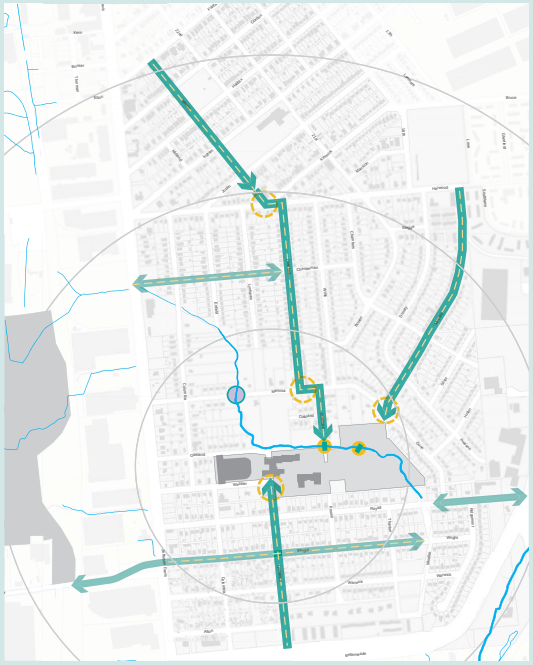
At Overlook, construct a new bridge that is wide enough to accommodate several children crossing at the same time.

At Minefee creek crossing, integrate outdoor education and creek access into crossing design.

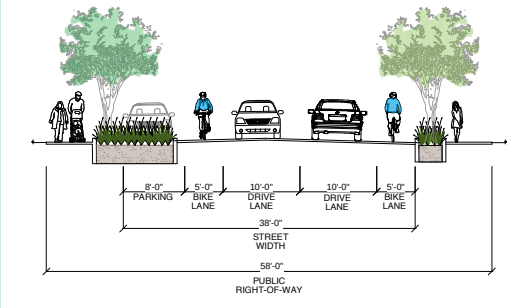
Culvert Crossings

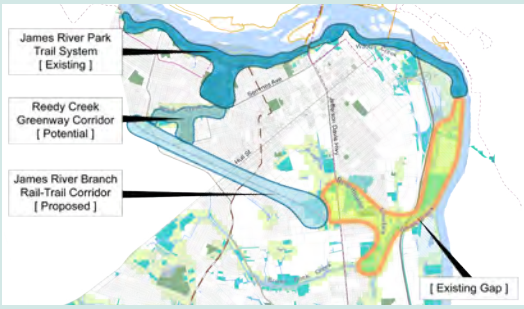
Add sidewalks, creek signage and overlooks to planned culvert crossing improvements at Mimosa. Consider entire right-of-way and adjacent properties that might be vacant or publicly owned to restore creek and enhance community connection to the watershed.

[1] Adapted from *Transport for London - Improving Walkabilty*, September 2005.



Connectivity Strategies





Top: example of a green street with landscape, rain water infiltration and sidewalk improvements. *Middle*: diagram of regional trail connectivity opportunities. *Bottom*: existing bridge at Overlook (left) and example of a bridge designed by community artists to reflect the skeletal form of a fish (right).

goal Improve walking routes to the community center and new school.

situation

Neighborhood connectivity can be enhanced by addressing safety and accessibility concerns. Safe passage in and around the neighborhood is challenged by high-accident corridors for pedestrians and bicycles, such as Jefferson Davis Highway, and the lack of sidewalks within the neighborhood (see sidewalk gap map to the right).

The strategies identified below also support the Mayor's Pedestrian, Bicycling and Trails Planning Commission and vision that the City of Richmond "support pedestrian and bicycle travel by becoming a community where walking and bicycling are integral parts of the transportation system." The Mayor also noted that physical activity can reduce the high incidence of obesity that exist in the City of Richmond (Mayor's Order #2010-02, pg. 1).

strategies

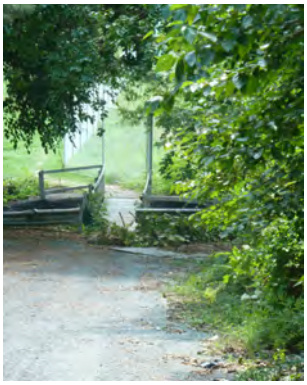
Sidewalk Improvements

Provide or extend sidewalks on primary routes to school and through the neighborhood. Sidewalks should be wide enough to allow users, including those with limited mobility, to easily pass by each other.

Street Lighting

Ensure that pedestrian areas are well-lit and have maximum visibility. Incorporating Crime Prevention through Environmental Design (CPTED) principles can help deter illegal or unwanted activity by increasing visibility and "eyes on the street."

Coordinate with neighbors to design and construct a safe, lighted entry corridor leading to the Overlook bridge (existing corridor pictured to the right). Sidewalks, plantings and streetlights from Oakland to the bridge will improve the experience of arriving at the new school and community center.



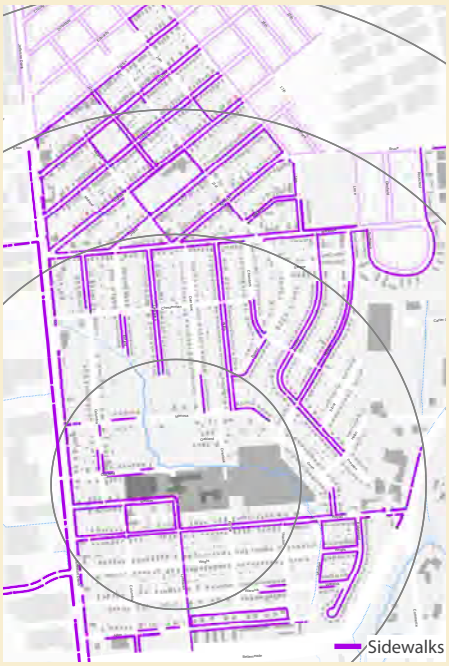
Bicycle Access

Incorporate bike lanes on primary routes to the extent feasible.

Install bike-friendly path from Overlook creek crossing to school and community center. Provide bike racks at key entrances.

Safe Intersection

Ensure that pedestrian crossings are well marked and signaled at busy intersections. Create direct pedestrian crossings, when possible. Integrate amenities, art and education into right-of-way design and street improvements at key intersections.



Existing sidewalks and gaps in connectivity

Addressing the lack of sidewalks and improving safety conditions along primary routes can encourage healthy lifestyles and provide children with **safe routes to school**. A majority of the students live within a 10 minute walk of the new school.

What is Safe Routes to School?

Safe Routes to School (SRTS) programs are sustained efforts by parents, schools, community leaders and local, state, and federal governments to improve the health and well-being of children by enabling and encouraging them to walk and bicycle to school. SRTS programs can also play a critical role in reversing the alarming nationwide trend toward childhood obesity and inactivity.

In 1969, approximately 50% of children walked or bicycled to school. Today, fewer than 15% of children walk or bicycle to school.

As a result, kids today are less active, less independent, and less healthy. As much as 20 to 30% of morning traffic can be generated by parents driving their children to schools. Traffic-related crashes are the top cause of death and major injury for children in the U.S. ages 1 to 17.

www.saferoutesinfo.org
www.saferoutespartnership.org

goal

Slow, infiltrate and clean rain water.

situation

Water flows through a network of streets, drains and the creek in the Bellemeade neighborhood. Urban development in the area has led to several challenges for the watershed and neighborhood stream, including erosive flows, channelization, polluted water and local flooding. The strategies below provide opportunities to restore the health of the creek by slowing and cleaning rain water as it flows through the watershed toward the creek and eventually into the James River.

strategies

Street Plantings

Install plantings and landscape improvements along Green Streets to slow and clean rain water. Consider the whole width and length of the right-of-way where feasible. Green Streets provide safe routes to the school and community center and include: Lynhaven, Mason, Overlook and Minefee.

Stream Stabilization

Assess the condition and form of the neighborhood creek that flows through city park property (see stream bank condition diagram to the right). Restore and protect the stream banks, particularly the heavily channelized banks at the Overlook crossing (2) and eroded banks along the recreation field (3).

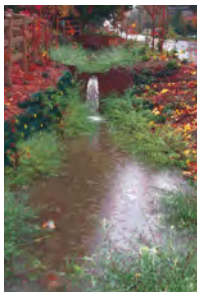
Creek Bed Restoration

This dry creek bed along Minefee south of Royall is the remnant channel of the neighborhood creek. Once a thriving creek enjoyed by local residents, this portion of the creek has been piped underground at Royall.

Restore the riparian corridor and integrate a creek-side watershed educational nature trail (see page 10). Depending on cost and feasibility, there may be an opportunity to restore some perennial flow to this riparian zone.

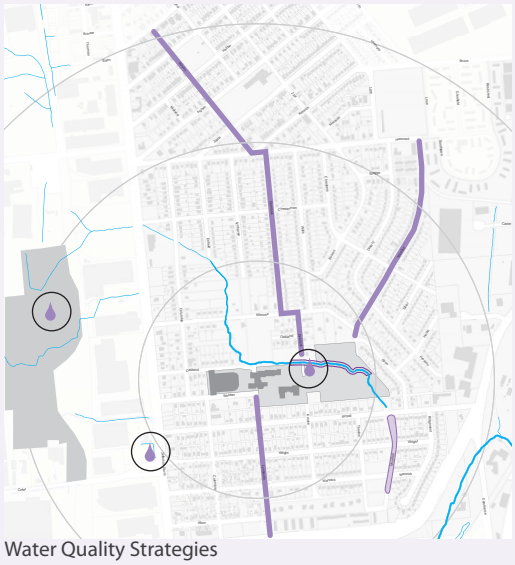
Stormwater Infiltration

Identify opportunities to infiltrate rain water along trails and in park areas through plantings, such as bioswales and rain gardens. In addition to cleaning rain water, these areas can also provide demonstration areas and promote watershed stewardship. Key areas identified include:



The CSX property (proposed regional park) and the vacated Overlook Street right-of-way within the park property adjacent to the new school offer excellent opportunities to integrate stormwater management and watershed education in a park-like setting.

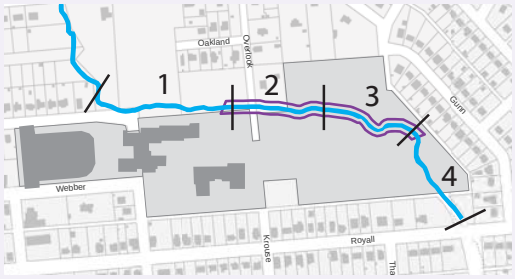
Stormwater infrastructure, such as open channels, ditches and piped streams on public property provide opportunities to demonstrate natural drainage techniques and provide educational signage.



Water Quality Strategies

Street planting examples to slow and clean rain water.

Stream Bank Conditions



1. Vegetated banks

2. Asphalt channel

3. Eroding bank

4. Concrete channel

goal

Develop a sense of community around the creek and new school.

situation

Access to outdoor activities supports healthy lifestyles and fosters an increased sense of community. The neighborhood lacks programs and amenities to encourage outdoor activity and community gathering. Access to outdoor activities also provides health benefits:

- Walking in a park or natural setting is associated with an increased ability to concentrate, including for children with ADHD (Taylor & Kuo, 2008).
- Obesity rates have more than doubled in American children over the past 20 years (National Longitudinal Study of Youth), and walking is one way to meet the Surgeon General's exercise recommendation of 30 minutes a day.

The strategies below elevate the school and creek as revitalizing forces for the neighborhood and strengthen a sense of community by providing a range of spaces and amenities to promote outdoor activity.

strategies

Neighborhood Park

Provide community access to the new school, community center and park property. Community members suggested amenities such as an exercise loop, swings, bike-playground, grills and picnic tables, a community garden and a rain garden (see page 10 for more detail).

Pocket Park

Promote community activity along school routes by enhancing city-owned vacant lots to provide community gardens, rain gardens, tot lots, community vendor locations, and other community building and education opportunities. Explore opportunities for rain water infiltration.

Regional Park

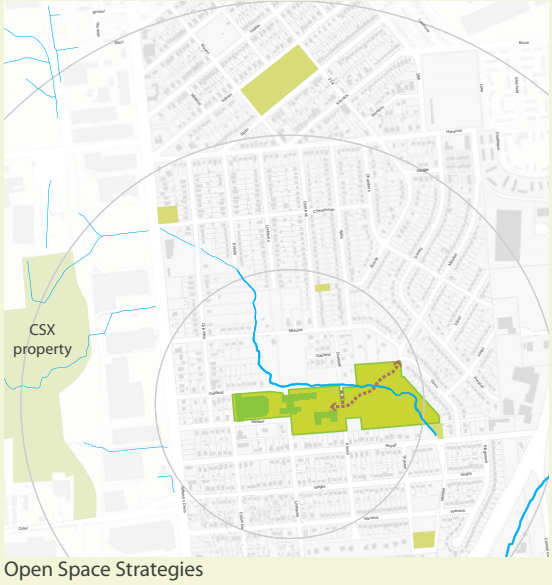
Support regional James River Branch Rail-Trail park planning efforts to connect the Rail-Trail to the Bellemeade neighborhood. Acquire and transform the CSX property into a regional park that integrates rain water infiltration opportunities, watershed education and park amenities.

Designated Paths

Designate trails for walking and exercise (see page 10 for more detail).

Create a loop trail with shade trees (or structures) and resting spots (tables or benches) around the north field and current recreation field on the park property.

Create a creek-side path connecting the recreation field to the clearing that meets Royall and extends along the riparian zone paralleling Minefee.



Open Space Strategies

Top: existing park property at entrance off Gunn.
Middle: example of community activity at a park.
Bottom: example of designated path.

EDUCATION + AWARENESS

goal

Create outdoor education opportunities.

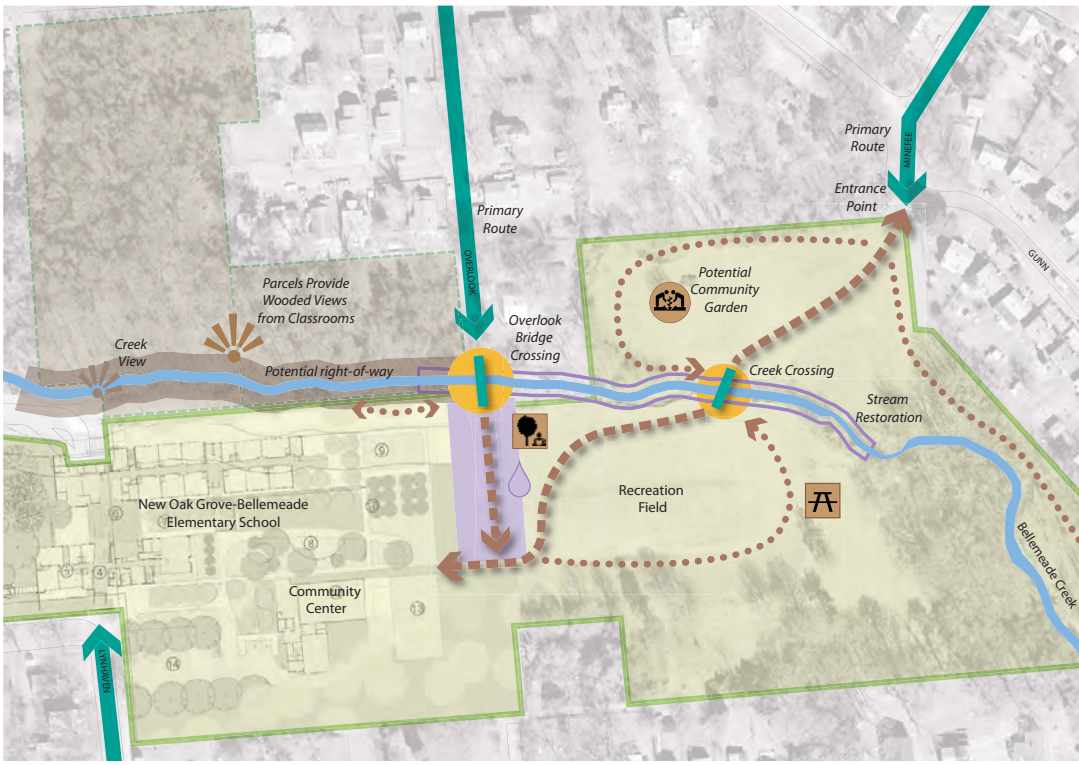
situation

The new, sustainably designed Oak Grove-Bellemeade Elementary School is expected to open in early 2013.

"We envision that the new school will embrace the adjacent creek as a tremendous learning opportunity for the students, and we hope to see the school become a real center for the Bellemeade neighborhood."

Ms. Laursen, School Principal

The strategies listed below promote outdoor education and awareness at the new community school and offer activities to bring the neighborhood together around the creek.



Community School + Park Property Strategies

strategies

Nature Trails

Develop watershed trails with signage to enhance neighborhood connectivity. Explore opportunities to create creek-side trails for learning and recreational opportunities.

Outdoor Classrooms

Provide outdoor learning activities for students. Amenities could include a rain garden and space for studying the creek. The central space could feature art designed by the students and community.

Wooded Views

Retain wooded views for classrooms. The north classrooms look out to the wooded parcels identified on the map. If developed or cleared, the view from the classrooms and feel of the school could significantly change. Preserve wooded parcels north of the school or, at a minimum, preserve a view within an expanded right-of-way to include the creek area adjacent to the school

Community Garden

Promote community gardening for the school and neighborhood. Integrate gardening and healthy food choices into school activities and food service.

situation

The Bellemeade neighborhood currently does not have adequate programs and active gathering places to support an active, cohesive neighborhood. In addition, the creek acts as a barrier separating residents north of the creek from the school and community center. Community stakeholders identified the following activities to support community building around the creek, adjacent park, community center and new school.

events + activities

Name the Creek Contest

Plan a contest for neighborhood residents to name the creek that runs through the Bellemeade neighborhood.

Ongoing Stream Cleanups

Schedule a series of events with local organizations, schools and residents to collect litter and foster stewardship of the creek.

Tree/Stream Planting Projects

Work with area organizations to plant trees along the creek and priority walking routes for community service projects.

Community Events

Plan several family-oriented events could take place annually in the park (for example, an Easter egg hunt or neighborhood festival).

Walk/Race to School Day

Select a day for neighborhood residents to walk to school to promote health and community spirit. Enlist volunteers to serve as crossing guards.

1/2 Hour Traffic Stop

Halt traffic through primary school entry for a half-hour before and after school.

education + recognition

Only Rain Down the (Storm) Drain Campaign

Develop a watershed education campaign in coordination with the City of Richmond and the James River Association.

Demonstration Gardens

Install demonstration rain gardens and community gardens in the neighborhood. Host events at the gardens to share how they work and how neighborhoods can create their own.

Educational Art

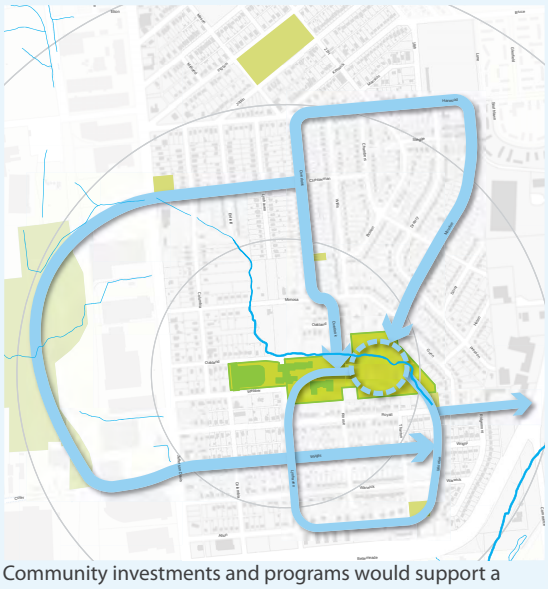
Apply art to storm drain covers illustrating that rainwater drains toward the creek.

Ongoing Education

Encourage fall leaf raking and seasonal drain cleaning to prevent clogged storm drain inlets.

Local Heroes and Local Heritage

Dedicate trees and benches installed in the park to recognize local residents and neighborhood history.



Community investments and programs would support a walkable watershed by creating a set of nested loop trails.

Bottom row: a past Bellemeade creek cleanup event

FROM PLAN TO ACTION

next steps

As a result of this project, the City of Richmond, the new Oak Grove-Bellemeade Elementary School, community partners and residents have a Watershed Concept Plan that can help guide, coordinate and leverage investment in the Bellemeade neighborhood.

A key next step is the development of a coalition to guide the funding and implementation of the strategies outlined in this Watershed Concept Plan.

For more information, contact:

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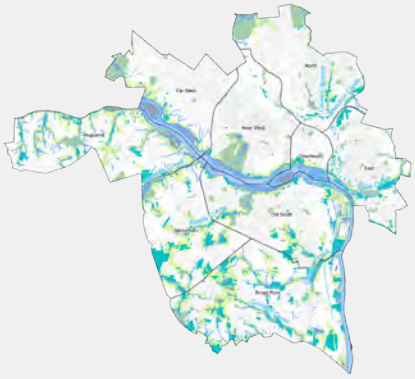

Students provided leadership throughout the process by sharing their insights and priorities for how to improve walking routes to school, outdoor education opportunities and the health of their neighborhood.

Project History

The Bellemeade Walkable Watershed project grew out of several years of green infrastructure planning at the regional and city scale.

- The Richmond Region Green Infrastructure Study conducted in 2009 outlines green infrastructure priorities at the regional scale.
- The Richmond Green Infrastructure Assessment conducted in 2010 outlines green infrastructure recommendations for the City of Richmond.

Reports are available at: www.gicinc.org/projects.htm.

Acknowledgements

The Bellemeade Walkable Watershed project has been made possible by the contributions, creativity and generosity of many individuals and organizations. The Green Infrastructure Center would like to thank the project's partners, participants and sponsors for the generous support in developing this Watershed Concept Plan. The project team extends special thanks to many community members who contributed their knowledge and time to this project, including Oak Grove-Bellemeade Elementary School students and staff, Bellemeade Civic League, Councilperson Ellen Robertson and Mr. Bob Argabright of Trinity United Methodist Church and Micah Initiative.

Sponsors and Partners

Project sponsors include Altria Group, the Virginia Department of Forestry and Skeo Solutions. Project partners include City of Richmond Stormwater Utility.

Altria

Green Infrastructure Center