Historic Stockade District

Comprehensive Streetscape Plan

Stockade Association of Schenectady, New York

June 2019

Acknowledgments

Stockade Streetscape Committee

Suzanne Unger, Chair

Lily Alvarez

Keith Dayer

Carol DeLaMarter

Lawrence James

Richard Unger, FAICP

Kristin Diotte, Director of Planning + Development - City of Schenectady

Matthew Smith, AICP, Homeownership Coordinator - City of Schenectady

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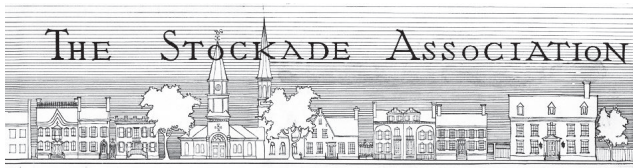
Photos are courtesy of the Consultant Team unless otherwise noted.



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Introduction & Project Overview

The Stockade neighborhood, founded in 1661 and named after the fence that surrounded the original community, was the birthplace of the City of Schenectady. With its narrow streets and eclectic architecture, the neighborhood has some buildings dating back to the 18th century. In 1957, the Stockade Association was founded to preserve, protect, and improve the neighborhood. The City of Schenectady passed an ordinance in 1962 establishing the neighborhood as a historic district (the first in the state of New York). The Stockade was listed as a historic district on the National Register of Historic Places in 1973.

Recently, the Stockade Association decided to develop a comprehensive streetscape design program for the neighborhood that would address the public realm in the historic section of the Stockade. At the May 2017 General Meeting, Stockade Association members voted to seek funds for completion of a Comprehensive Streetscape Plan. The members also voted to commit $10,000 of Stockade Association funds towards such a plan. A subcommittee (Streetscape Committee) of the Infrastructure Committee was then established to seek additional funding and manage the streetscape planning process. Since the Streetscape Committee's creation, it has raised $42,000 in grants from the Schenectady Foundation, the Wright Family Foundation, and the Golub Foundation. We thank these organizations for their support.

Project Overview

The Comprehensive Streetscape Plan is a guidebook for potential improvements within the RH-2 Stockade Historic Residential District. Any improvements in the District will need be in compliance with City Code (including Chapter 228, Streets and Sidewalks and Chapter 243 Tree and Shrubs - see Appendix D). In some cases, current City Code requirements differ slightly from recommendations provided in these guidelines. The Stockade Association through this plan and the planning process recommends that the City Code and sidewalk permit requirements be amended to reflect the improvements recommended in this document.

The planning process for the development of the Comprehensive Streetscape Plan included:

- An introduction to the project at a Stockade Association General Meeting on September 20, 2018 held at St. George's Great Hall.
- The Stockade community walked the Historic Stockade with the Consultant Team on a "Walk Audit" on October 10th to discuss the streetscape experience block by block. Conversations included discussions of streetscape furniture and lighting, sidewalk condition, calming traffic, street trees, and the overall experience. Each participant completed an observations sheet to provide the Consultant Team with feedback and then each Walking Group met at St. George's Hall to summarize their findings and let the rest of the participants know what they found. Additionally, a self-guided walking tour utilizing the format from the October 10th meeting was promoted and printed copies of the walk audit form were made available at Spy boxes and online. Walk audit results are found in Appendix E.

- Project materials and information was posted to the Stockade Association website and updated materials as needed throughout the planning process.
- Six Streetscape Committee meetings.
- Extensive fieldwork and photographs at the streetscape level, with images taken by the Consultant Team to provide a sense of the unique characteristics of the Stockade.
- The first public workshop was held at St. George's Hall on January 17, 2019.
- The second public workshop was held on April 22, 2019. The public had the opportunity to learn more about the Draft Comprehensive Streetscape Plan and provide feedback on the draft concepts. Feedback and responses to comments are found in Appendix F.
- The Final Plan was posted at the end of May 2019 and the Plan was adopted on June 5, 2019 at the Stockade Association meeting.

Opposite Page: Walk Audit

Above Left: Public Workshop #1

Above and At Left: "Aerial-like" field images

Streetscape Characteristics

Street Trees

Information was gathered specific to the Historic Stockade District from the City of Schenectady's 2018 tree inventory as part of the larger Cornell Cooperative Extension of Schenectady County Tree Inventory, which included the City of Schenectady, Town of Rotterdam, and Town of Glenville. The study included an inventory and assessment of the trees, stumps, and planting sites located in the street rights-of-way. Davey Resource Group (DRG) collected and analyzed the inventory data to understand species composition, tree condition, and to generate maintenance recommendations. This data and findings are used in this Plan.

Species Diversity

Throughout the Stockade's rights-of-way, 383 sites were inventoried, including 355 trees, 9 stumps, and 19 proposed planting sites. Figure 1 below shows the composition of the most populous species compared to all inventoried species.

The composition of a tree population should follow the 10-20-30 Rule for species diversity: a single species should represent no more than 10% of the urban forest, a single genus no more than 20%, and a single family no more than 30%.

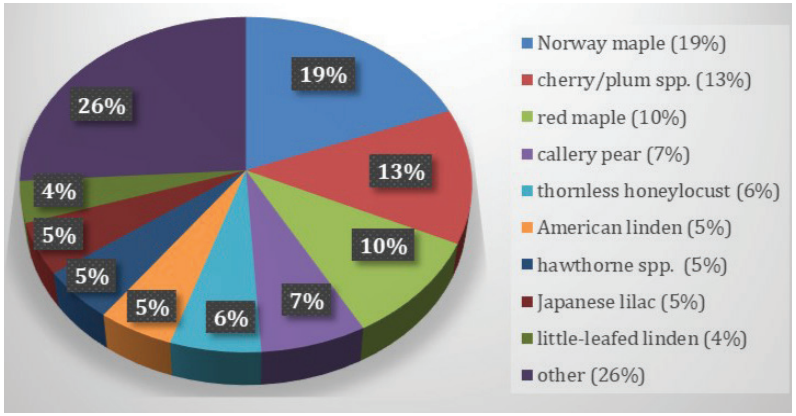


Figure 1: Species Diversity

Currently the Stockade District has one species, Norway maple (comprising 19% of the inventoried population), that surpasses the 10% rule for an individual species. Cherry/Plum spp. is made up of several species and is therefore excluded from this rule. Red maple is at the 10% threshold.

The top five genera are maple, cherry, linden, pear, and honeylocust. One genera, Acer (maple), exceeds the recommended 20% threshold. Maples make up 35% of the street right-of-way tree population in the Stockade District. The majority of the maple population is Norway Maple, an invasive species.

Diameter Size

Analyzing the diameter size class distribution (measured as diameter at breast height [DBH]) provides an estimate of the relative age of a tree population as well as insight into maintenance practices and needs.

The inventoried trees were categorized into the following diameter size classes: young trees (0–8 inches DBH), established (9–17 inches DBH), maturing trees (18–24 inches DBH), and mature trees (>24 inches DBH). A tree population with an ideal distribution would have an abundance of newly planted and young trees, with established, maturing, and mature trees present in lower numbers. The Stockade's distribution trends toward the ideal; however, as the urban forest ages, the number of mature trees will rise above the ideal number. Therefore, it is important to continually plant new trees each year. Additional analysis involving diameter size can be found in Appendix C.

ReTree Schenectady Tree Planting

The non-profit, ReTree Schenectady, plants and cares for trees in the City of Schenectady. Since 1999, ReTree Schenectady has been planting bareroot trees and has conducted an annual Spring and Fall bare root planting. ReTree also has a recommended tree planting list. The standard size for bareroot planting is 1 ¾" caliper, though some 1 ½" or 2" caliper trees are planted.

In the Stockade, ReTree has planted 185 trees over the last 20 years, including four trees in November 2018 (please note this occurred after the tree inventory data used in this document).

Tree Condition

Several factors were considered in the 2018 study regarding the condition of each street tree including root characteristics, branch structure, trunk, canopy, and foliage condition; as well as the presence of pests. The condition of each inventoried tree was rated Good, Fair, Poor, or Dead as indicated on Map 1.

Most of the inventoried right-of-way trees were recorded to be in Fair condition (see Figure 2). Based on this data, the general health of the overall inventoried tree population is rated Fair. In an urban setting, it is often difficult to grow trees that are in Good condition because they were often not placed in the right location (situations such as the growing space being too small as seen below right, trees growing into the wires as shown to the right, trees too aggressively pruned, etc). Therefore, it is important to place the "right tree in the right place," which helps ensure better growing conditions that can influence the health of a tree. Poor condition ratings among mature trees were generally due to visible signs of decline and stress, including decay, dead limbs, sparse branching, or poor structure.

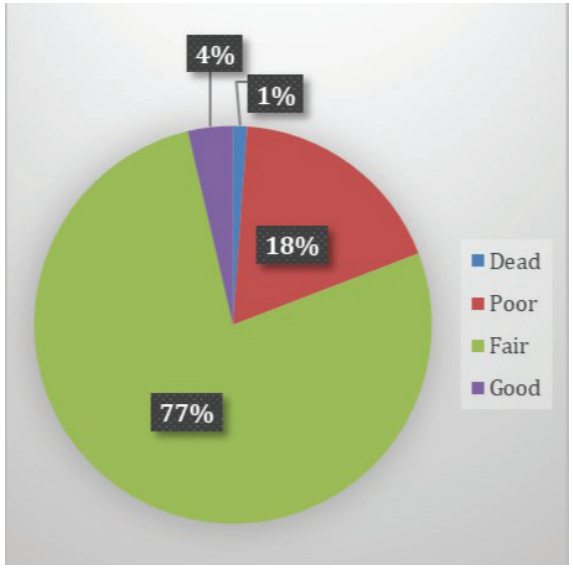


Figure 2: Tree Condition

Map 1: Tree Condition

Source: Base data provided by Schenectady County Department of Economic Development and Planning and the City of Schenectady, NY Tree Inventory, compiled Summer 2018.

Sidewalk Type and Conditions

Sidewalk types and conditions vary throughout the Stockade neighborhood. Sidewalk materials generally include concrete, asphalt, blue stone, and slate. Bricks, most often red or yellow, are often used as accents in the tree lawn and building zone as can be seen in the pictures below and at right. Patterns are typically a herringbone brick pattern but basketweave can be found as well. Sometimes both patterns are found adjacent to each other as seen in the image below. In areas with narrow sidewalks, it is not uncommon to find pipes sticking out of the sidewalk. Unique drain features are also found in some locations as pictured below. Accessibility can be difficult due to uneven sidewalk surfaces, curb cuts, and adjacent areas, all combine to make accessibility of sidewalks challenging.

Street Furniture

Currently, the Historic Stockade neighborhood has a limited amount of street furniture. The Stockade Association has a preferred trash receptacle design and a few benches - including one near the monument at Front and Church and another (see images below) on Front Street. During the public workshops, there was a preference for benches in the traditional style.

Lighting

Existing Lighting

Lighting styles in the Historic Stockade are almost exclusively cobra-head lights and are oriented towards the road and automobiles. There is little pedestrian-scale lighting available and many of the cobra lights are actually blocked by the tree canopy - minimizing lighting for all users. During the public workshop there was a preference for more traditional style pedestrian lighting.

Smart City REV Demonstration Project

National Grid is currently testing LED lighting and smart city technologies in the City of Schenectady. Testing in the Stockade neighborhood is underway on Union Street between North College Street and Washington Avenue and includes retrofitting 18 streetlights with intelligent controls and with a mixture of soft-white and daylight temperature LED bulbs. The intent is to determine customer's preferences for 4,000K or 3,000K LED color temperature.

In 2019, National Grid is planning to replace approximately 4,200 company-owned streetlights with advanced LED lights that will be retrofitted with controls and smart city technologies. Phase one of the demonstration project, in 2019, will include the installation of LED luminaries, intelligent network lighting controls, and communication networks in two areas of the City. Phases two and three will install luminaries in other areas of the city over three years and will also include the installation of smart city technologies. The goal of this program is to provide energy savings, improve existing streetlight performance, and to allow for smart city applications.

Historic Lighting Styles

The majority of lighting in the Historic Stockade is of the cobra style as seen above. The majority of pedestrian lighting is from lights around front doors rather than individual post pedestrian-scaled lights. Where there is pedestrian lighting as shown in the image at right, it is of a traditional style. As seen with the images at right and on the next page, historically the Stockade had a variety of lighting styles, from the acorn style above right and of the lantern post-style to the double column style. Discussions during public workshops indicated a desire to continue the traditional style of lighting by adding more pedestrian lighting throughout the neighborhood. A preference was also noted for full cut-off lighting which reduces light pollution, is dark sky compliant, and minimizes light intrusion into the 2nd and 3rd stories of buildings.

Historic images courtesy of Schenectady County Historical Society

Existing Crosswalks

Existing crosswalks are in most cases, stamped asphalt or occasionally painted lines. Delineated crosswalks in the Stockade are mostly worn-out, thus providing minimal visible benefits, or are missing from many intersections. As seen below, the stamped asphalt crosswalk is nearly indistinguishable from the street due to wear.

Traffic and Parking Existing Conditions

Traffic Patterns

The Stockade neighborhood has a variety of traffic patterns and street widths. Some streets are one-way, others are two-way, and this can change on the same block. Even some of the narrow streets, while technically two-way roads, are barely wider than a single travel lane, making passing difficult. While these conditions are not going to change due to existing design, they may actually assist in managing speeds and volumes on such streets, and thus are a positive asset. One-way streets are as follows:

- Front Street (except between Ferry and Church and east of College)
- N. College Street
- Green Street (except east of College)
- N. & S. Ferry Streets
- Washington Avenue (between State and Union)

Parking

Public meeting attendees noted problems with on-street parking, especially during winter months. The Consultant Team recommends parking space delineation paint to indicate parking spaces and marking off-street loading spaces and no parking zones (next to stop signs) to assist with clarifying on-street parking and loading zones. The Consultant Team's quick review of the Historic Stockade District revealed a number of large off-street parking lot areas which could be explored further for shared parking opportunities, particularly during winter months when streets need to be plowed or when a snow emergency is declared.

Streetscape Vision & Planning Principles

Vision

The Historic Stockade is a walkable neighborhood with open welcoming spaces that celebrates the historic character of the Stockade Historic District and that emphasizes pedestrian and bicycle safety.

Implementation of Planning Principles

The Comprehensive Streetscape Plan shall adhere to the following principles:

- Principle 1: Improve the walkability of the Stockade by installing sidewalks, curbing, and accents that are consistent with the historic character of the surrounding neighborhood.
- Principle 2: Continuously maintain the Stockade's street trees to ensure a healthy urban forest.
- Principle 3: Create a welcoming daytime and nighttime environment for all users.
- Principle 4: Work with the City of Schenectady to make vehicular transportation improvements, with a focus on pedestrian and bicycle safety, through the installation of traffic calming measures.
- Principle 5: Enhance stormwater management efforts through the installation of green infrastructure, where feasible.

Historic Stockade images courtesy of Schenectady County Historical Society.

Street Typology

In most urban neighborhoods or districts, street corridors are the primary public space. They are not just for moving automobiles but are for moving people using all modes of travel. They are where people meet and greet one another on stoops, front porches, and while walking on the sidewalk, often times with dogs or strollers. They are literally the lifeline for the elderly and disabled living in these neighborhoods. They are an important element in neighborhood interaction and the Historic Stockade District is no exception. After considering the streets in the Historic Stockade, the Consultant Team has identified three street types for consideration. These street types are based on function rather than physical characteristics alone.

The street types described on the following pages coincide with Map 2 and include Gateway Streets, Neighborhood Streets, and Connector Streets.

Map 2: Street Typology

Source: Base data provided by Schenectady County Department of Economic Development and Planning.

Gateway Streets

Gateway Streets provide neighborhood ingress/egress into the Stockade District without encouraging through traffic. With the exception of Front Street, they tend to have wider sidewalks than the other street types and generally have room for medium to large street trees and lighting. Again with the exception of most of Front Street, the majority of the Gateway Streets have two-way traffic. These streets warrant special attention at points of entry to the neighborhood through wayfinding signage and decorative intersections and crosswalks. The cross section below is a typical representation of a Gateway Street but the dimensional characteristics do vary.

Gateway Streets include:

- Front Street (N. College Street to N. Church Street)
- N. Church Street & S. Church Street
- Washington Avenue (south of Union Street)
- Union Street

Figure 3: Gateway Street Cross Section

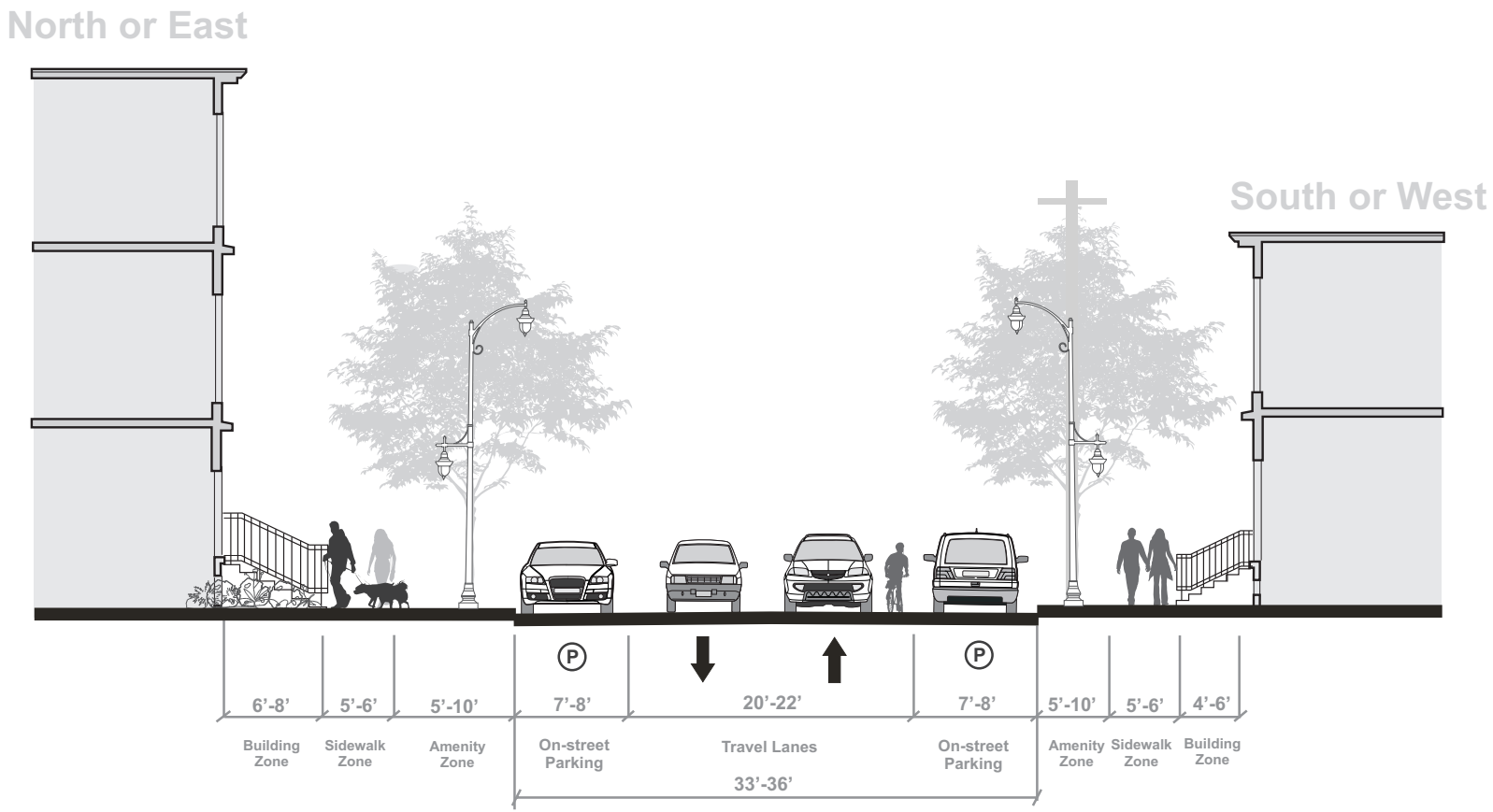
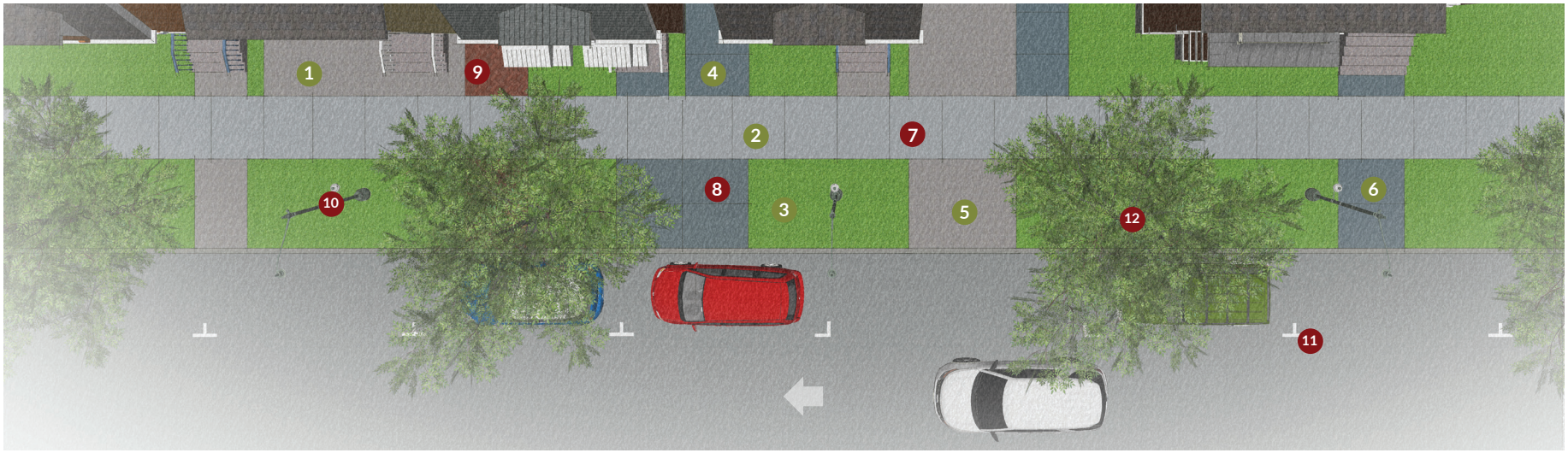


Figure 4: Illustrative Representation of the Gateway Street



Zones

1. Building Zone - Lawn, landscaping, concrete and/or pavers
2. Sidewalk / Pedestrian Zone - Concrete
3. Amenity Zone - Lawn, landscaping, concrete and/or pavers
4. Private Pedestrian Alley - Concrete and/or pavers
5. Private Driveway - Concrete (in buffer zone)
6. Carriage Walk - Concrete and/or pavers

Materials

Paving

7. Tinted Concrete (see page 29 for details)
8. Reused Slate or New Bluestone (see page 29 for details)
9. Brick Paver - Herringbone Pattern (see page 29 for details)

Lighting

10. Double arm street light serving both the pedestrian way and the street (see page 24 for details) - image below from Acuity Brands lighting

Parking

11. On Street Parking Tees - Delineation of parking spaces

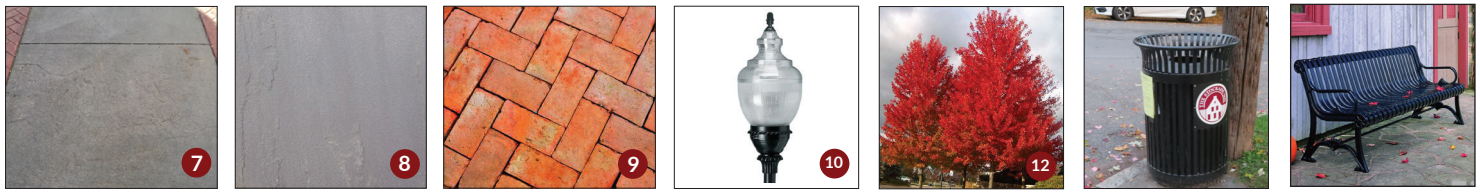
Trees

12. Medium to Large street trees (see page 37 for details)

Furnishing

Strategically placed benches, trash receptacles and bike racks - bench image from DuMor, Inc.

Design Palette



Neighborhood Streets

These streets provide access to the heart of the neighborhood and are used primarily by people that live in the neighborhood. They are generally tighter and more compact streets and are one-way with on-street parking on one side. Because of their compactness, special sidewalk treatments are more likely in the narrow tree lawn area. The combined pedestrian and buffer zone varies from 8 to 11 feet and will accommodate medium to small trees and pedestrian scale lighting.

Neighborhood Streets include:

- Front Street (N. Church Street to Washington Avenue)
- Green Street
- N. Ferry Street
- S. Ferry Street
- N. College Street
- S. College Street
- Washington Avenue (north of Union Street)

Figure 5: Neighborhood Street Cross Section

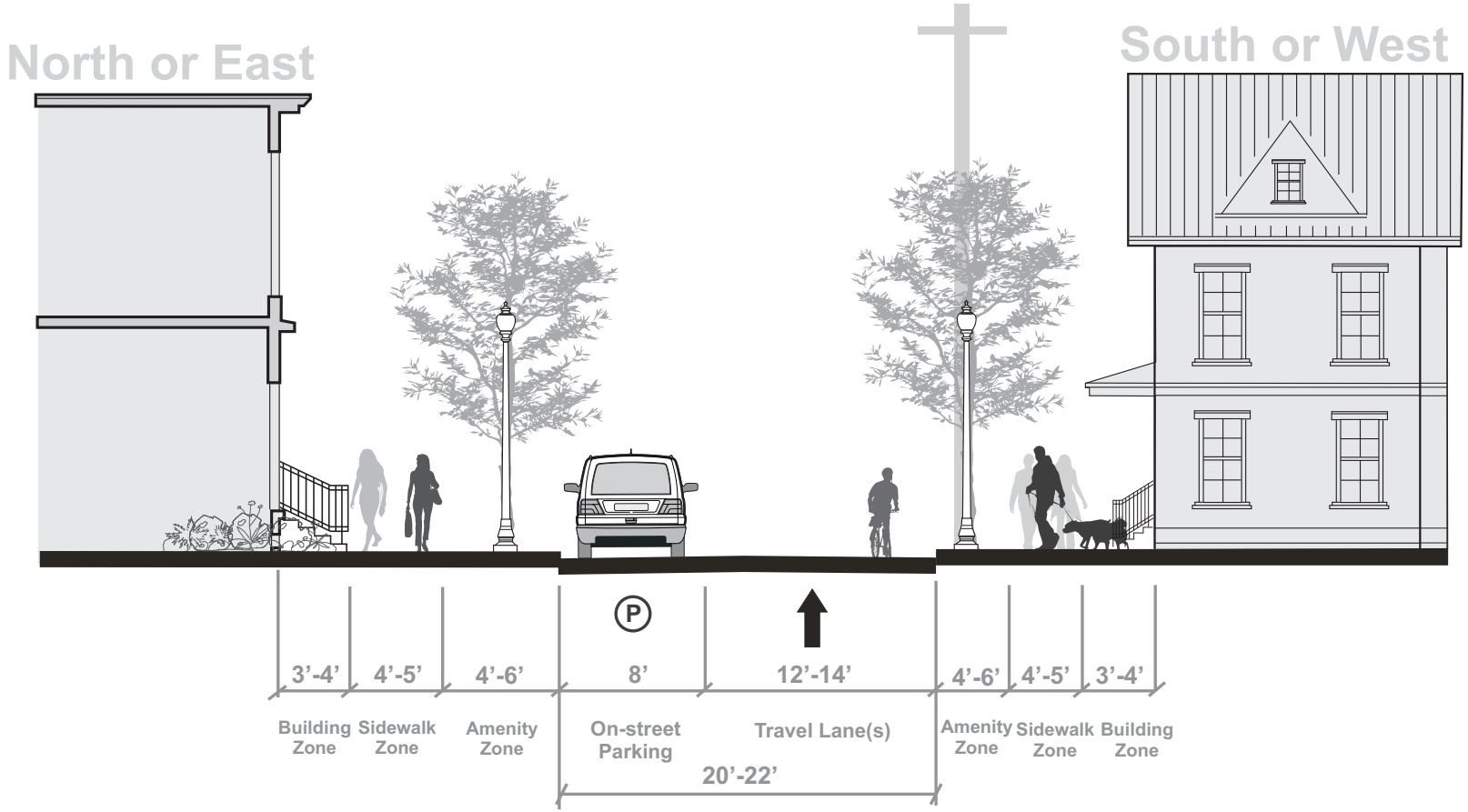
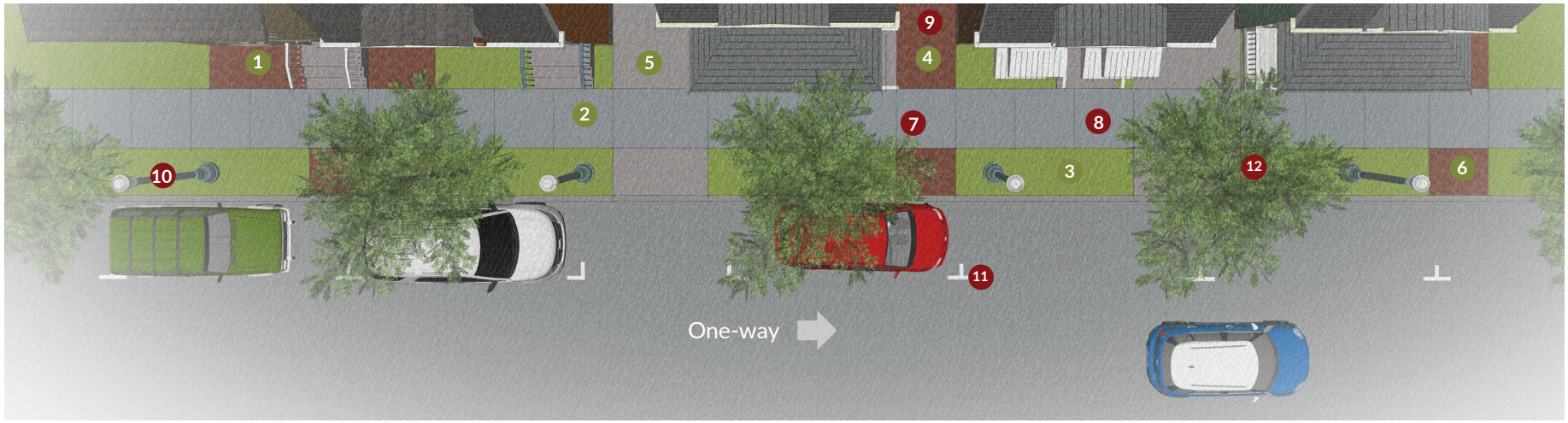


Figure 6: Illustrative Representation of the Neighborhood Street



Zones

1. Building Zone - Lawn, landscaping, concrete and/or pavers
2. Sidewalk / Pedestrian Zone - Concrete
3. Amenity Zone - Lawn, landscaping, concrete and/or pavers
4. Private Pedestrian Alley - Concrete and/or pavers
5. Private Driveway - Concrete (in buffer zone)
6. Carriage Walk - Concrete and/or pavers

Materials

Paving

7. Tinted Concrete (see page 29 for details)
8. Reused Slate or New Bluestone (see page 29 for details)
9. Brick Paver - Herringbone Pattern (see page 29 for details)

Lighting

10. Single pole pedestrian scale (see page 24 for details) - image below from Acuity Brands lighting

Parking

11. On Street Parking Tees - Delineation of parking spaces

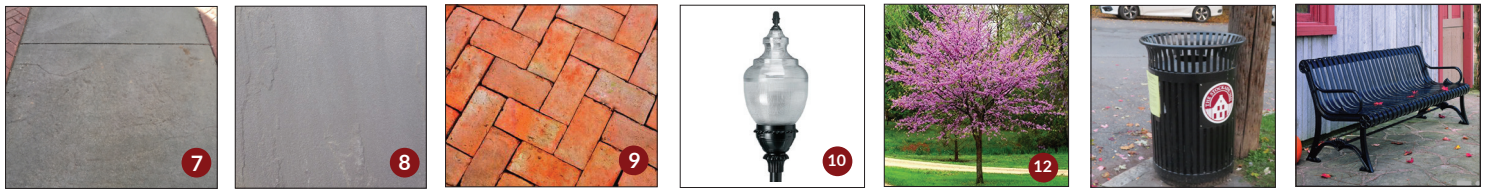
Trees

12. Medium and small street trees (see page 37 for details)

Furnishing

Strategically placed benches, trash receptacles and bike racks - bench image from DuMor, Inc.

Design Palette



Connector Streets

Connector Streets are the most compact streets in the Stockade District and they are dead-end streets that provide access for the people that live on that street or for users of Riverside Park.

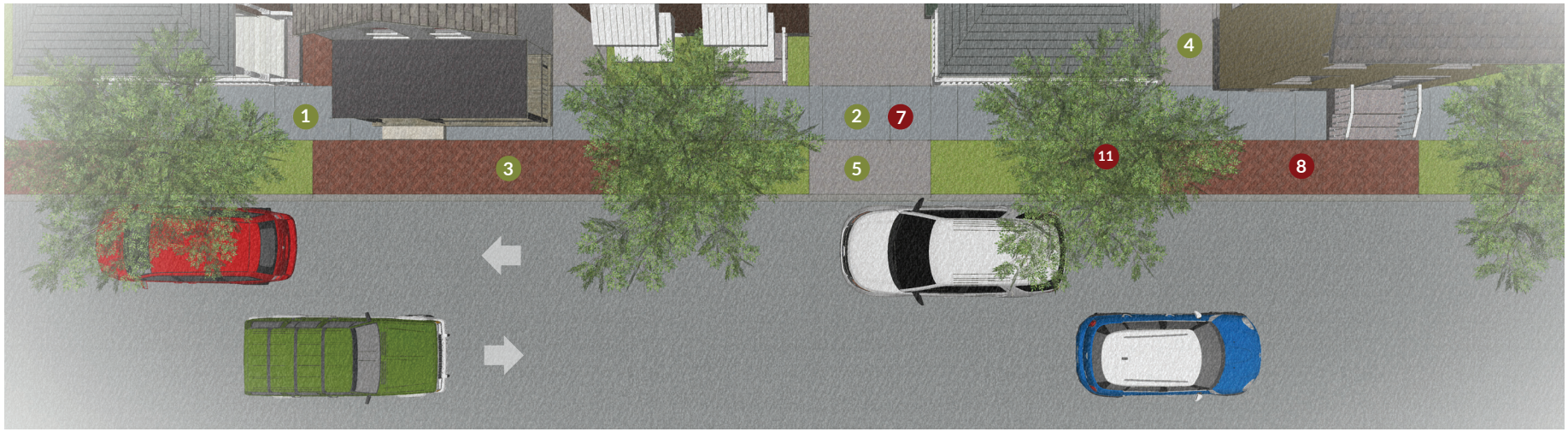
They typically have a curb-to-curb width of between 15 and 17 feet and includes parking on one side. Many are two-way streets, which often requires vehicles to yield to oncoming traffic. Due to varying building setbacks and narrow right-of-ways the pedestrian zone and the buffer zone are often one in the same.

Connector Streets include:

- Cucumber Alley
- Ingersoll Avenue
- Governors Lane
- N. Washington (north of Front Street)
- North Street

Figure 7: Connector Street Cross Section

Figure 8: Illustrative Representation of the Connector Street



Zones

1. Building Zone - Lawn, landscaping, concrete and/or pavers
2. Sidewalk / Pedestrian Zone - Concrete
3. Amenity Zone - Lawn, landscaping, concrete and/or pavers
4. Private Pedestrian Alley - Concrete and/or pavers
5. Private Driveway - Concrete (in buffer zone)

Materials

Paving

7. Tinted Concrete (see page 29 for details)
8. Brick Paver - Herringbone Pattern (see page 29 for details)

Due to the limited width available in the sidewalk area - new bluestone is not recommended.

Lighting

Generally due to the width of the street, pedestrian lighting will be limited. Where utility poles are present, a pedestrian arm utilizing the Gateway lighting treatment is appropriate (see page 15 for details).

Parking

No delineation of parking spaces.

Trees

11. Small or no street trees could be used (see page 37 for details)

Furnishing

Not a priority

Design Palette

Design Guidelines & Standards

The following guidelines and standards are intended to serve as a reference for streetscape planning and design in the Historic Stockade District. This plan reviewed all streets within the Historic Stockade District and developed design guidelines and standards with a specific focus on creating a compatible aesthetic while also providing design freedom and flexibility for homeowners. Detailed design is anticipated during implementation, but this document will serve as the foundation for the next phase of work.

These guidelines highlight the primary elements covered in this document, but other design elements may come up through further vetting and design/engineering. Images and diagrams are used to help explain various topics.

Benches

Benches provide opportunities for residents and visitors to rest and sit and talk with one another. Many people disregard benches in the streetscape because they believe they lead to undesirable loitering. However, if they are designed properly, placed in key locations and coordinated with pedestrian-level lighting, they often prove to bring positive activity to the street.

Standards & Guidelines

- Benches should be fabricated of heavy gauge metal and painted with vandal-resistant powder coat paint. The metal material and finish should be corrosion resistant and able to take heavy salt abuse during the winter. Benches should be securely mounted onto the surface.
- Seating surfaces should be 16 to 18 inches high (maximum 24 inches) and should have a minimum depth of 16 inches for seats without backs, 14 inches for seats with backs (maximum 30 inches). Benches may vary in length from 4 to 8 feet, depending on design and intended users.

Design Considerations

- Place benches in functional and accessible locations where users can reach them directly from public sidewalks or pathways in all weather conditions.
- Benches with backs and armrests are preferred and generally more comfortable for people with physical disabilities.
- When possible, locate benches near lighting and plantings. Nearby trees provide shade during the day and shelter from the rain.

Suggested Manufacturers

- DuMor or current manufacturer of Stockade benches (black finish).

Image by DuMor, Inc

Trash & Recycle Receptacles

Receptacles reduce litter and provide for convenient disposal of waste and recyclable products. A waste receptacle is a container for disposing of trash. A recycle receptacle is a container for collecting material that can be reused or reprocessed for another use, such as soda cans, plastic water bottles, etc.

Standards & Guidelines

- Receptacles should be fabricated of heavy gauge metal and painted with vandal-resistant powder coat paint. The metal material and finish should be corrosion resistant and able to take the heavy salt abuse during the winter. They should be securely mounted onto the surface.
- Receptacles should have interior polyethylene liners to contain waste. Bins should allow users to drop material in it without requiring physical force (pulling, lifting or pushing).
- Detachable lid should be cabled securely to the unit.

Design Considerations

- Bins should not clutter the sidewalk or block the pedestrian travelway.
- Material and finish should be consistent with other streetscape elements, such as benches and planters.
- When possible, waste receptacles should be located near lighting.

Suggested Manufacturers

- DuMor or current manufacturer of Stockade receptacles (black finish).

Image by DuMor, Inc

Bicycle Racks

Bicycle racks provide secure parking facilities for bicycles. The term “rack” should not be interpreted as the use of long, multiple installations that do not support the bicycle frame.

Standards & Guidelines

- Anchor bicycle racks to a paved surface and use vandal-resistant bolts or other attachments that prevent removal using common tools.
- All bicycle racks should use single inverted-u or post and loop designs, or a similar combination, which provide primary support for the bike frame. Racks that secure only the wheel are not allowed.
- All rack placements should provide independent access to each bicycle. Single racks are both flexible and unobtrusive.
- The exterior surface of the rack shall be nonabrasive, non-marring, and durable to minimize refinishing or repair.

Design Considerations

- Convenience and security are the two major concerns for locations. Lighting and adjacency to high traffic areas reduces vandalism and theft.
- Well-placed racks encourage bicycle transportation and do not block pedestrian routes. Lack of adequate facilities forces cyclists to lock bikes to signs, railings, and trees. Racks should be placed at logical locations, such as near the mixed-use areas on S. Church Street and N. Ferry Street, churches, and near apartment buildings and other destinations and activity centers.
- Locate bicycle racks near major building or center entrances, but they shall not obstruct entrances or pedestrian paths.
- Locations that shelter bicycle racks from weather conditions is desirable.

Suggested Manufacturers:

- Dero
- DuMor
- Cycloops

Images by Dero

Image by DuMor, Inc

Lighting

Additional lighting with the Stockade District would make the neighborhood more walkable at night.

Lighting Standards & Guidelines

- Lighting styles should follow the style noted in the Street Typology section of the Plan.
- Pedestrian-scale lights should be 14 feet in height.
- Street lights should be 18 feet in height.
- Lighting styles should complement the historic character of the Stockade District based upon historic lighting styles and the City of Schenectady's lighting style at State Street.
- Full-cut off lighting is required.
- Street and pedestrian lighting should be LED lights not to exceed the 3,000 K spectrum.

Design Considerations

- On streets where both pedestrian and street lighting is needed (e.g. Gateway Streets), a decorative two-arm system should be used.
- Material and finish should be consistent with other streetscape elements including benches and receptacles (black finish).
- Variations in height for pedestrian-scale and street lights may be needed in areas with low street tree canopies.
- Proper installation of the base of the lights is needed to ensure that the base is flush to the sidewalk.
- Installation of LED light fixtures as part of the Smart City REV Demonstration Project will be supported.

Suggested Manufacturers

- There may be economies of scale through using the City of Schenectady's current manufacturer.

The acorn fixture is a traditional design with a history in the Stockade District. The far left image is courtesy of the Schenectady County Historical Society and the near left image is an image of a modern Acorn fixture courtesy of Acuity Brands lighting.

Example similar style acorn light in Schenectady.

The images at the bottom of the page show how a two-arm lighting system can accommodate both street lighting and pedestrian lighting. Images from the Oakland Street Design Manual.

Gateways, Wayfinding & Signage

Gateways provide visual cues that you are entering a place of significance. They are typically identified at points of transition defined by an edge; a physical barrier or boundary such as a river, highway, intersection, or railroad underpasses. Special attention must be paid to these areas because they provide first impressions and a sense of arrival. Effective wayfinding systems result from a process based on graphic representation, environmental analysis, and identification of user needs and behaviors. A sign system in the Historic Stockade District could identify parking areas, significant historic sites, river access points, etc. Map 3 indicates wayfinding and signage needs.

Gateways

Gateways can be as simple as decorative sign installations or special pavement treatments or they can be more elaborate spaces with sculptures, fountains, or an arch sign over the street. Design features in the gateways should reflect the Stockade's identity as a neighborhood rich with history and culture. Throughout the development of this Plan, there was a separate planning process underway for the Gateway at Union Street and Erie Boulevard.

As entryways to the Stockade, these streets are proposed for additional gateway enhancements to further orient and define the Stockade area:

- S. Ferry & State Street
- Green Street at the Railroad underpass
- Washington Avenue & State Street
- S. Church Street & State Street

Wayfinding Standards & Guidelines

- A wayfinding system should include a hierarchy of signs and design features for pedestrians and motorists.
- Sign types to consider include: banners, directional signs, destination arrival signs, general information signs and kiosks, landmark signs, pavement treatments, and inlaid medallions in the sidewalk. Inlaid medallions could be utilized for stops on the historic walking tour.

Design Considerations

- A wayfinding system should direct users to destinations.
- These signs should provide immediate information and directions to pedestrians, bicyclists, and motorists.
- Any wayfinding signage should be accessible for users regardless of physical ability.
- Wayfinding signage should be simple, aesthetically pleasing, and designed to attract attention of passing pedestrians, bicyclists, and motorists.

Opposite: An historic gateway sign that will be installed on Church Street, image courtesy of the Schenectady County Historical Society. At left: Banner photo courtesy of the Stockade Association.

Map 3: Wayfinding & Signage Needs

Source: Base data provided by Schenectady County Department of Economic Development and Planning.

Public Art

Public art includes sculpture, mosaics, wall art, and other two- and three-dimensional installations designed for and placed in the public realm.

Standards & Guidelines

- Placement should maintain good sight lines for pedestrians and motorists.
- Locations should not compromise the intended use of specific public spaces.
- A plinth, pedestal, or other means to designate art locations should be considered. This will help define the dimensional limitations of the display area.
- Identify maintenance needs, safety considerations, and replacement costs in the design process and before installations.

Design Considerations

- Art may interpret the history, character, or people of the District.
- Art forms may include landscaping, fencing, brickwork, glasswork, gates, fences, lighting, painting (murals), sculpture, seating, lettering, signage, computer generated, water, use of color, artifacts, etc.
- Placement should be site-sensitive and encourage public view.
- Public art could be used to enhance wayfinding elements.
- Permanent public art should use durable materials that will maintain their appearance and integrity over time.
- Art selections should recognize diverse types of art and individual preferences, and create varied environment.
- When possible, public art displayed in the Stockade District should exhibit the talent and diversity of local artists.

Image Courtesy of Stockade Association

Supplemental Landscaping

Additional landscaping and greening elements not only provide a decorative touch, but also add visual interest for pedestrians. Many examples already exist in the Historic Stockade neighborhood and are on display during the Stockade Garden Tours. Supplemental landscaping recommended for use in the Historic Stockade includes:

- Hanging Baskets
- Window Boxes
- Planters
- Raised Planter Beds
- Plantings in bump-outs
- Trellis/arbor/pergola in side yards or front yards (with deep front yards).
- Gardens with groundcover, flowers, and ornamental small trees or shrubs.

Supplemental landscaping should utilize the following principles:

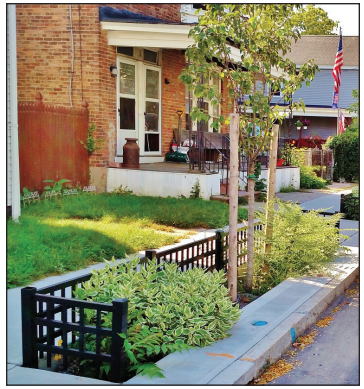
- In tree pits that are too small for a street tree, or for planting beds in the amenity zone, include landscaping with year-round interest.
- Hanging baskets, planters, and window boxes should contain live plantings.
- Planters can be either moveable (and removed during the winter months) or permanent.
- Window boxes should be as wide as the window sill.

Green Infrastructure

Green infrastructure reduces stormwater runoff, filters pollutants, and improves air and water quality. Installing green infrastructure can reduce the damaging effects of runoff on rivers and streams, and often add character and provides aesthetic benefits to the street. Disconnecting or at least diverting some flow from storm sewers and directing runoff to natural systems such as landscaped areas, bio-swales and rain gardens reduces water velocity and cleans stormwater runoff. Natural stormwater systems can also reduce storm sewer pipe size. Options for the Historic Stockade (subject to site conditions and in conjunction with other stormwater efforts) include:

- Filtered strips
- Permeable or porous pavements
- Rain barrels
- Rain gardens
- Stormwater planters
- Vegetated swales

Definitions for the above green infrastructure techniques are found in Appendix A. The Capital District Regional Planning Commission (CDRPC) has developed a Green Infrastructure Toolkit that summarizes key infrastructure best practices. It can be found on their website at: https://cdrpc.org/wp-content/uploads/2017/12/Green-Infrastructure-Toolkit.pdf.



Images Courtesy of CDRPC

Sidewalk Materials & Curbing

Walk surfaces are an important consideration when developing streetscape standards. The materials need to be durable, safe to walk on, and contribute to the overall character of the Historic Stockade District. When possible, existing slate and brick should be removed, cleaned, and reused.

Sidewalk Materials Standards & Guidelines

- The standard sidewalk treatment is tinted concrete (see color below). Aggregate concrete shall be avoided and hand-tooled joints are recommended to mimic the historic look of other materials. Higher cost alternatives to tinted concrete include reused slate or new bluestone provided that the installation and materials meet city standards. The city standard for installation is 4" thick (6" thick across driveways).
- Sidewalks shall meet the standards set forth in the Americans with Disabilities Act (ADA).
- A contiguous sidewalk path, free of obstructions, shall be maintained at a minimum of 4 feet wide. 5 feet or more is preferred where possible where the width can be accommodated.
- Sidewalk placement (not width) can vary as needed to accommodate large tree roots to allow for adequate tree growth.
- Reused slate, new bluestone, or clay brick pavers can be used to accent the sidewalk in the amenity zone (per city standards). Clay brick pavers shall be in the herringbone pattern.

Tinted Concrete

Bluestone

Brick - Herringbone Pattern

- The finish materials and pattern of the sidewalk shall be maintained through driveways, alleyways, and curb ramps. Driveways should come up to the sidewalk level.
- Stamped concrete and asphalt shall be avoided. Asphalt shall not be permitted between the street, curb, and building zone. Asphalt may not be laid on top of sidewalks.

Construction Design Standards

Concrete shall be considered the standard material for sidewalks in the Historic Stockade District. Upgrades to the use of slate and bluestone shall be at the installing party's discretion. However, any upgrade must fully comply with city standards, ADA construction and design standards, and be approved by the City of Schenectady.

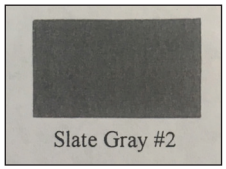
All Stockade District concrete sidewalks shall be designed to imitate the look of the District's historic bluestone and slate sidewalks. To this end, all cement shall be mixed, pigmented (tinted), formed, poured, cut, and finished to imitate the natural look of the bluestone quarried in New York and Pennsylvania and still found in certain locations within the Historic Stockade District.

- Strength and Aggregate Mix: The strength and aggregate mix shall meet or exceed city standards (4,000 psi, Portland cement).

Typical Concrete

Preferred Look

- Pigmentation/Tinting: All cement to be used for sidewalks in the Historic Stockade District shall be tinted during the cement mixing process to achieve the bluish color of blue stone. Pigmentation added to cement shall achieve the coloring and look of the Grandview Block and Supply "Slate #2," or equivalent.



- Forming and Cutting: Perimeter form imprints shall not be visible. All concrete sidewalks shall be saw-cut to lengths not exceeding five feet. Saw-cut lengths of 2-3 feet are acceptable. Saw-cuts shall be made through to the entire depth of the sidewalk.

- Finishing: All sidewalks shall be first smooth finished (trowel or screed) in preparation for stamping or otherwise providing the bluestone finished appearance. Finishing the concrete shall entail "loose" stamping, or other finishing technique, such that each section of sidewalk has the differing textures and patterns that would naturally appear in true bluestone. There shall be no "broom" finishing, nor any trowel finishing. Perimeter form imprints shall not be visible.

Example of Preferred Construction Design

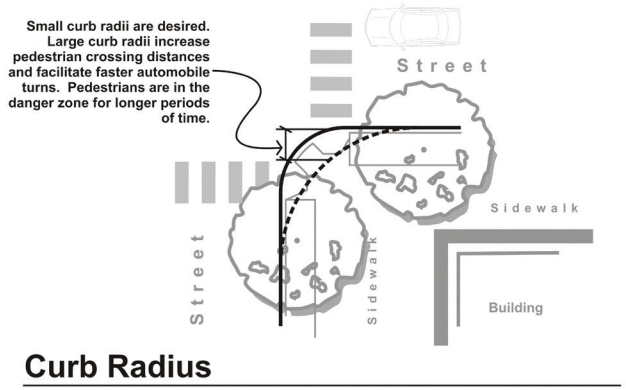
Curbing Standards & Guidelines

- Granite curbs shall be the standard installation and meet the city standard.
- Sloped curbs are required at crossings consistent with ADA regulations.
- Curb design must meet city standards.

Curbing Design Considerations

- When determining curb radii, consider vehicles as well as impacts on pedestrians crossing distances. Smaller curb radii reduce pedestrian crossing distances and increase pedestrian safety.

Figure 9: Curb Radius



Traffic Calming, Crosswalks & Intersections

Crosswalks and unique decorative intersections help set the stage for gateways into the neighborhood. There are opportunities to install traffic calming measures to help slow cars, alter driver behavior, and improve conditions for walkers and bicyclists. Physical measures for traffic calming include bump-outs, decorative paving elements for intersections that announce a destination and slow traffic, and crosswalks.

Standards & Guidelines

- Mid-block crosswalks should be designated on long blocks to allow safe passage for pedestrians.
- Bump-outs at corners should be used to narrow the street width to calm traffic, slow vehicles, and provide shorter crossing distances for pedestrians.
- Crosswalks should be perpendicular to the street rather than angled. Special treatments should be used at key gateways, while painted ladder crosswalks could be used at minor crossings.
- ADA accessible curb ramps shall be installed at all intersections.

At Right: Curb ramps and bump-out examples.

Design Considerations

- Reflect the historic character of the neighborhood through the use of decorative accents near crosswalks. Cobblestones, river stones, and pavers can be used as seen in the examples at right. Much of the Stockade has asphalt covering the cobblestones, so there are potential opportunities to reuse materials.
- Painted crosswalks alert motorists of a crossing and can be used to improve pedestrian safety. Painted crosswalks will be used as an interim measure to enhance pedestrian safety until such time as funding and the opportunity allows for a decorative crosswalk. Decorative crosswalks are the preferred installation where possible.
- Painted crosswalks could be installed as simple painted lines or "piano keys" as seen in the examples below and at the top of the page.

Crosswalk and intersection accents and an historic Stockade image (with strips of stone in crosswalks), image courtesy of Schenectady County Historical Society.

Street Trees

Street trees provide shade which is not only beneficial to people, but it extends the life of pavement as well. Along with aesthetic benefits, trees can improve the function and feel on the street by creating enclosure which makes the street feel narrower, therefore slowing traffic and enhancing pedestrian friendliness.

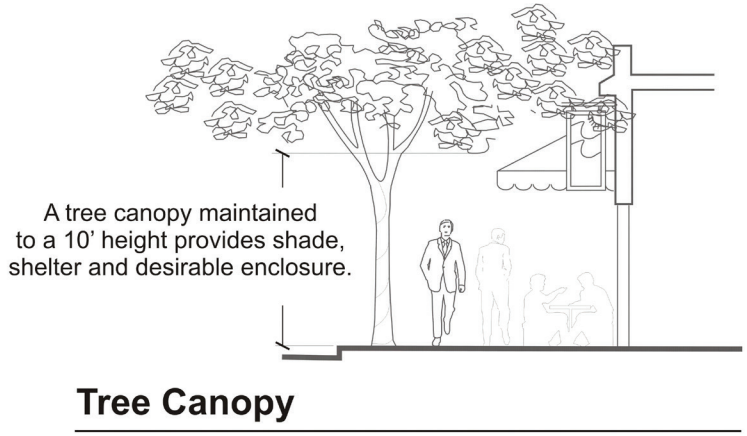
In order to ensure that the Stockade's urban forest remains healthy, proper street tree placement is necessary. In many cases, the Stockade's street trees were planted in locations that are inappropriate for their growth. For example, as can be seen at right, this larger tree needed to be trimmed away from the overhead utility wires. Throughout the neighborhood, many sidewalks have heaved where the root structure of a tree does not have room for growth within the tree pit. Sidewalk placement can be, and should be adjusted, around existing trees in good condition to accommodate their root structure where it is possible.

Standards & Guidelines

- Street tree types should not exceed more than 20% of the neighborhood's street trees.
- Plant a variety of street trees based upon the Stockade Street Tree list. Because there is an abundance of maples in the Stockade, other species should be planted on blocks where many maples are present.
- The Stockade's street tree population should have an abundance of newly planted and young trees, with established, maturing, and mature trees present in lower numbers.
- Placement of trees and other landscape materials should not violate sight lines for drivers or pedestrians.
- Small trees should be planted approximately 20 feet on center.
- Medium and large trees should be planted at 30 - 40 feet on center, when possible, and alternate placement with street lighting.

- During the design process, the lighting plan and tree selection/ placement should be considered and coordinated.
- Large street trees should not be planted under wires.
- When possible, the vertical distance between sidewalk surface and tree canopy should be at least 8 feet and not more than 12 feet.
- 15 feet minimum spacing from utility/light poles, fire hydrants, utility boxes.
- 5 feet minimum distance from driveway curb cuts.
- 3 feet minimum distance from underground utility lines, water access covers, etc.
- Tree pits should have roughly 35 square feet of surface such as 6'x6', 5'x7' or 4'x8', unless structural soil is used under surrounding paved area.

Figure 10: Tree Canopy



Design Considerations

- When possible, avoid using tree grates. Tree grates should only be used in very constrained rights-of-ways. They are costly and limit the growth of the tree when not removed with maturation. Planting beds and ground covers are better treatments for the base of a tree.
- Consider tree and landscape maintenance as part of the design process.
- To maintain the urban forest, when trees are removed, ensure that another tree is replaced within the neighborhood at a 1:1 ratio, with an effort to maintain the street canopy for each block.
- Consider trees with year-round interest (e.g. spring flowers, fall color, texture, etc.).
- Rain gardens should be installed, where possible, to reduce excessive runoff and provide water to plantings. Alternatives to turf grass should be considered to manage stormwater runoff. Additional details are provided in the Green Infrastructure section of this Plan.

Street Tree Size

Proper landscaping and tree planting are critical components of the atmosphere, livability, and ecological quality of a community's urban forest. Size of a tree at maturity and root depth are affected by site conditions and can vary in urban settings. Proper location, growth space, and tree maintenance will maximize the life of the tree and its associated benefits. Table 1 below describes growth space requirements for street trees by size. Map 4, to the right, generally depicts the appropriate tree size by street.

The street tree list that follows in Table 2 (and found with further detail in Appendix B) is offered to assist the Stockade Association and residents in selecting appropriate tree species. This list has been evaluated for factors such as size, disease and pest resistance, seed or fruit set, and availability. These trees have been selected because of their aesthetic and functional characteristics and their availability to thrive in the majority of soil and climate conditions throughout Zone 5 on the USDA Plant Hardiness Zone Map.

Table 1: Tree Growth Space Requirements

Size of Street Tree	Growth Space Requirements
Small	Need a growth space of at least 24 square feet. Can plant under overhead utilities. Planting distance between trees should be approximately 20 feet.
Medium	Growth space of at least 32 square feet. Do not plant under overhead utilities. Planting distance between trees should be approximately 30 feet.
Large	Need a growth space of at least 32 square feet. Do not plant under overhead utilities. Be mindful of planting trees with large canopy width near buildings. Planting distance between trees should be approximately 40 feet.

At planting, balled and burlapped (B & B) trees are recommended to be at least 2.5" caliper while bareroot trees should be at least 1.25" caliper (and more appropriate to be planted in the fall).

Map 4: Tree Size by Street

Source: Base data provided by Schenectady County Department of Economic Development and Planning.

Table 2: Street Tree List

Small Trees: 15 to 30 Feet in Height at Maturity

Scientific Name	Common Name	Cultivar	Canopy Spread	Relative Cost
Acer campestre[2]	Hedge maple	Queen Elizabeth™	25 to 35 feet	$
Acer griseum	Paperbark maple	---	20 to 25 feet	$$-$$$
Amelanchier spp.[12]	Serviceberry	(Numerous exist)	15 to 25 feet	$-$$
Carpinus caroliniana[1]	American hornbeam	---	20 to 30 feet	$
Cercis canadensis[12]	Eastern redbud	'Forest Pansy'	25 to 35 feet	$$
Cornus kousa	Kousa dogwood	(Numerous exist)	15 to 30 feet	$-$$
Crataegus viridis[12]	Green Hawthorn	'Winter King'	20 feet	$
Halesia tetraptera[2]	Carolina silverbell	'Arnold Pink'	20 to 35 feet	$$-$$$
Malus spp[1]	Flowering crabapple	(Disease resistant only)	15 to 25 feet	$
Styrax japonicas	Japanese snowbell	'Emerald Pagoda'	20 to 35 feet	$$
Syringa reticulata[12]	Japanese tree lilac	'Ivory Silk'	15 to 25 feet	$$
Acer saccharum[1]	Dwarf sugar maple	'Sugarcone'	10 to 15 feet	$

Medium Trees: 31 to 45 Feet in Height at Maturity

Aesculus × carnea	Red horsechestnut	---	20 to 35 feet	$$
Cladrastis kentukea	American yellowwood	'Rosea'	40 to 55 feet	$$
Eucommia ulmoides	Hardy rubber tree	---	40 to 60 feet	$
Koelreuteria paniculata	Goldenraintree	---	30 to 40 feet	$-$$
Ostrya virginiana[1]	American hophornbeam	---	20 to 40 feet	$
Parrotia persica[1]	Persian parrotia	'Vanessa'	15 to 30 feet	$$
Prunus maackii	Amur choketree	'Amber Beauty'	25 to 35 feet	$-$$
Prunus sargentii[1]	Sargent cherry	---	20 to 30 feet	$-$$
Quercus acutissima	Sawtooth oak	---	40 to 60 feet	$
Sorbus alnifolia[1]	Korean mountainash	---	20 to 25 feet	$$

Large Trees: Greater Than 45 Feet in Height at Maturity

Scientific Name	Common Name	Cultivar	Canopy Spread	Relative Cost
Acer rubrum[1]	Red Maple	Red Sunset®	35 to 40 feet	$
Cercidiphyllum japonicum[1,2]	Katsuratree	'Aureum'	20 to 30 feet	$$
Ginkgo biloba[1,2]	Ginkgo	(Choose male trees only)	25 to 30 feet	$$
Metasequoia glyptostroboides[2]	Dawn redwood	'Emerald Feathers'	25 feet	$$
Nyssa sylvatica[2]	Black tupelo	---	20 to 30 feet	$-$$
Platanus × acerifolia[2]	London planetree	'Yarwood'	65 to 80 feet (typically not as large of a spread in urban environments due to pruning/ maintenance)	$-$$
Quercus x warei	Regal Prince oak	---	20 feet	$
Tilia cordata[1,2]	Littleleaf linden	'Greenspire'	35 to 40 feet	$-$$
Tilia × euchlora[1,2]	Crimean linden	---	20 to 30 feet	$-$$
Ulmus parvifolia	Chinese elm	Allée®	20 to 60 feet	$$

[1] City of Schenectady Tree List

[2] ReTree Schenectady Recommended Tree Species

$ - under $250 $$ - $250 - $350 $$$ - above $350

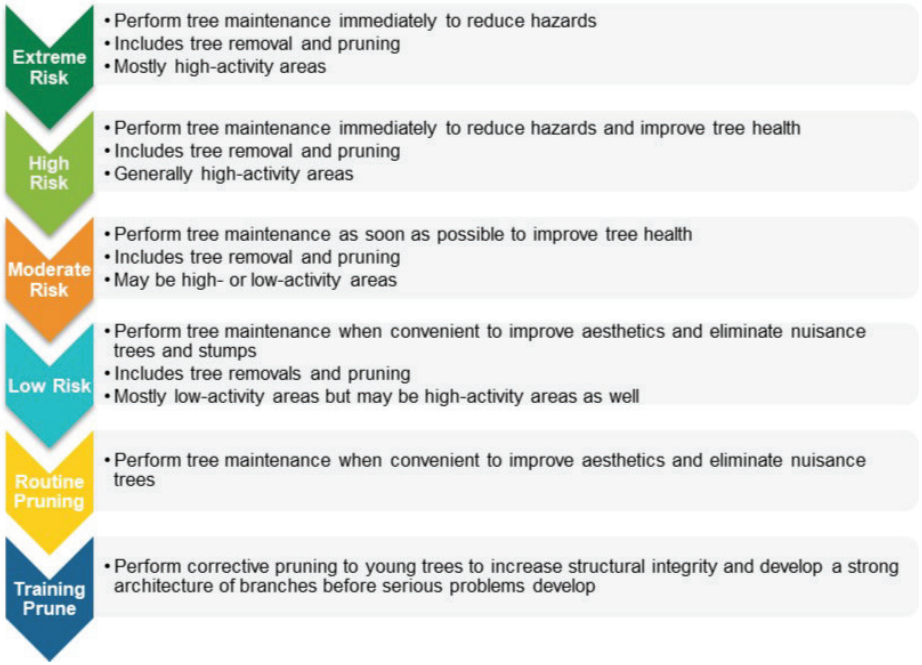
*Pricing are general estimates and are subject to change based on availability, nursery location, balled and burlapped (B & B) vs. bareroot, and other variables. Pricing categories are based on B & B trees. See Appendix B for further details.

Street Tree Risk and Maintenance

Every tree has an inherent risk of tree failure or defective tree part failure. During the inventory, Davey Resource Group (DRG) performed a Level 2 qualitative risk assessment for each tree and assigned a risk rating shown in Map 5 (the risk rating details can be found in Appendix C - note that "No Risk" is an empty tree pit). Trees can have multiple failure modes with various risk ratings. The failure mode having the greatest risk is the overall tree risk rating. The specified time period for the risk assessment is one year.

While implementing a tree care program is an ongoing process, tree work must always be prioritized to reduce public safety risks. DRG recommends completing the work identified during the inventory based on the assigned risk rating; however, routinely monitoring the tree population is essential so that other Extreme or High Risk trees can be identified and systematically addressed. While regular pruning cycles and tree planting are important, priority work (especially for Extreme or High Risk trees) must sometimes take precedence to ensure that risk is expediently managed.

Figure 11: Priority Maintenance



Tree Care Program

Proper tree care practices and pruning are needed for the long-term general health of the Historic Stockade District's urban forest. Details on proper practices are found in Appendix C.

The recommended tree maintenance work was divided into either priority or proactive maintenance for the Stockade District (see Figure 11). Priority maintenance includes tree removals and pruning of trees with an assessed risk rating of High and Moderate Risk (no Extreme Risk trees where found at the time of inspection). Proactive tree maintenance includes pruning of trees with an assessed risk of Low, and trees that are young. Tree planting, inspections, and community outreach are considered elements of proactive maintenance. Recommendations for maintenance include the following:

- Dead trees should be removed because of their failed health.
- Younger trees rated in Fair or Poor condition may benefit from improvements in structure that improve their health over time.
- Stressed young trees could benefit from more frequent waterings.
- Poor condition trees will require corrective pruning, regular inspections, and possible intensive plant health care to improve their vigor. If their condition continues to deteriorate, the tree should be reinspected by a certified arborist to see if removal is warranted.
- Although tree removal is usually considered a last resort, there are circumstances in which removal is necessary. Trees fail from natural causes such as diseases, insects, weather conditions, and from physical injury due to vehicles, vandalism, and root disturbances. DRG recommends that trees be removed when corrective pruning will not adequately eliminate the hazard or when correcting problems would be cost-prohibitive. Trees that cause obstructions or interfere with power lines or other infrastructure should be removed when their defects cannot be corrected through pruning or other maintenance practices.

Map 5: Tree Risk

Source: Base data provided by Schenectady County Department of Economic Development and Planning and the City of Schenectady, NY Tree Inventory, compiled Summer 2018.

Conceptual Pedestrian & Traffic Safety Enhancement Recommendations

Just about every intersection within the Historic Stockade District needs to be either updated/upgraded to provide a more visible pedestrian crossing, or improved to provide a crossing altogether. When evaluating pedestrian crosswalks, it will be important to assess existing conditions to ensure curb ramps are adequate and provide ADA compliant detectable warning surfaces. Crosswalk paint or treatments should be provided along with crosswalk signage in some high traffic locations. Conceptual pedestrian and traffic safety enhancements are found on the next several pages for the following locations:

- Circle at Front Street/Ferry Street/Green Street
- Front Street at Ingersoll Avenue
- Front Street at North College Street
- N. Church Street & Front Street

There are a few items to note regarding the conceptual pedestrian and traffic safety enhancements. In addition to considering the installation of bump-outs in certain locations, there is an opportunity to redesign some intersections (inside the crosswalks area) to replace them with pavers or other materials to make a unique intersection design that will get the attention of drivers, as detailed on page 30. Bump-outs should be designed to not eliminate any legal parking spaces. Delineation of parking spaces on Gateway and Neighborhood Streets will also assist residents to ensure the proper spacing of parking spaces. There are also opportunities for installation of mid-block crossings on Front Street and Union Street. Implementation of these concepts will require additional analysis, detailed design and engineering, coordination and approval by the City of Schenectady (the City is responsible for maintaining and improving the roads), and solicitation of funding. Additional review may be required by the New York State Historic Preservation Office (SHPO), if state or federal funds are used.

Proposed bicycle routing (Map 6), which includes higher-level bicycle recommendations, is derived from the City of Schenectady Bike Infrastructure Master Plan. Additional proposals for shared lanes (sharrow) indicate connections throughout the neighborhood to enhance connectivity based upon the overall approach of improving bikeability throughout the Historic Stockade. Map 7 summarizes the potential traffic calming enhancements.

The intersection of N. Church Street and Front Street is excessively wide. Potential treatments are included on pages 45 and 46.

Map 6: Proposed Bicycle Infrastructure Network

Source: Base data provided by Schenectady County Department of Economic Development and Planning. Bike infrastructure derived from the City of Schenectady Bike Infrastructure Master Plan. Shared lanes for Green St, N. College St, and part of Front St derived through this planning process.

1 Figure 12: Concept Sketch

- Front Street/Ferry Street/Green Street

For Stockade Association consideration of design style only. Actual improvement(s) to be determined in conjunction with traffic engineering analysis.

2 Figure 13: Concept Sketch

- Front Street at Ingersoll Avenue

For Stockade Association consideration of design style only. Actual improvement(s) to be determined in conjunction with traffic engineering analysis.

3 Figure 14: Concept Sketch

- Front Street at N. College Street

For Stockade Association consideration of design style only. Actual improvement(s) to be determined in conjunction with traffic engineering analysis.

4

Figure 15: Concept Sketch

- N. Church Street and Front Street

For Stockade Association consideration of design style only. Actual improvement(s) to be determined in conjunction with traffic engineering analysis.

Mini Roundabout - N. Church Street and Front Street Intersection

An alternative for the intersection of N. Church Street and Front Street is a mini roundabout. Benefits are likened to that of a modern roundabout. The focus is to improve safety for all users, enhance the visibility of pedestrians, reduce traffic speeds, and improve the efficiency of traffic flow. As with all the potential enhancements, a detailed traffic and engineering analysis should be undertaken to determine the feasibility of a mini roundabout.

A mini roundabout in Ithaca, New York

Source: Base data provided by Schenectady County Department of Economic Development and Planning.

Map 7: Potential Traffic Calming Enhancements

Implementing the Streetscape Plan

To successfully implement the Comprehensive Streetscape Plan, a proactive maintenance and comprehensive approach is necessary, even if implementation occurs on a smaller scale. A comprehensive approach helps ensure consistency and design implementation.

Implementation Next Steps

Recommendations for implementation of the Comprehensive Streetscape Plan are found in Table 3. Recommendations include some project details, implementation partners, and potential funding sources. Anticipated time frames are as follows:

- Short-Term - 1-2 years
- Medium-Term - 2 to 4 years
- Long-Term - 4-10 years
- Ongoing

Table 3: Implementation Matrix

Recommendation	Description	Anticipated Timeframe	Implementation Partners	Potential Funding Sources
Adopt Stockade Street Tree List	Work with the City of Schenectady to adopt the Stockade Street Tree List.	Short-Term	City of Schenectady	City of Schenectady
Tree Maintenance Program	Create a tree maintenance program focusing on pruning and preventive maintenance to ensure low to medium risk trees retain their health, removal of dead trees and stumps as needed, and selected removal based upon tree condition and high risk factors. This work will be supervised by a Certified Arborist.	Short-Term	Stockade Association, City of Schenectady, ReTree Schenectady	DEC, Retree Schenectady
Sidewalk Incentive Program	Expand the Stockade Association incentive program to offer incentive grants for sidewalk upgrades. Assist the neighborhood in reusing materials (slate, pavers, river stones, etc.) for use as accents in the tree lawn or building zone. Salvaged cutstones from Pine Street may be a mutual opportunity for the City and the Stockade Association.	Short-Term	Stockade Association, City of Schenectady	Stockade Association, City of Schenectady
Recommended Contractor List	Create a recommended contractor list for tree installation, sidewalk installation, and other streetscape work.	Short-Term	Stockade Association	Stockade Association

Recommendation	Description	Anticipated Timeframe	Implementation Partners	Potential Funding Sources
Adopt Stockade Sidewalk Permit Standards	Work with the City of Schenectady to adopt changes to the sidewalk permit standards for the RH-2 Stockade Historic Residential District.	Short-Term	City of Schenectady	City of Schenectady
Install Low-Bridge Signage	Work with the City to add signs to discourage semi-trucks on low-bridge routes.	Short-Term	City of Schenectady	City of Schenectady
Speed Limit Reductions	As described in the Schenectady 2020 Plan, look to reduce speed limits in the Stockade (20 mph), along with traffic calming installation measures.	Short-Term	City of Schenectady	City of Schenectady
Sidewalk Replacement Program	Sidewalk replacement may be possible through the implementation of the Sidewalk Assessment District or through applications for TIP funds. Should state or federal funding be pursued, there will be additional coordination with SHPO as part of the process.	Medium-Term/Long-Term	Stockade Association, City of Schenectady	HSIP, TAP, CMAQ, CFA, REDC, Schenectady Foundation, Wright Family Foundation
Install Pedestrian-Scale Lighting	Install pedestrian-scaled lighting as a part of sidewalk updates.	Medium-Term/Long-Term	City of Schenectady, National Grid	CFA, REDC, Schenectady Foundation, Wright Family Foundation, National Grid Smart Lighting Program as applicable

Recommendation	Description	Anticipated Timeframe	Implementation Partners	Potential Funding Sources
Install Wayfinding Signage and Gateways	Install wayfinding signage and establish new gateways within the Stockade neighborhood.	Medium-Term/Long-Term	Stockade Association, City of Schenectady, Schenectady Heritage Foundation	Schenectady Foundation, Carlilian Foundation, Golub Foundation, Wright Family Foundation
Evaluation and Installation of Traffic Calming & Crosswalk Improvements	Explore mid-block crossings on Union Street and Front Street and finalize the design for traffic calming improvements discussed in this Plan.	Medium-Term/Long-Term	City of Schenectady	HSIP, TAP, CMAQ
Shared Parking Formalization	Formalize off-street parking arrangements for winter snow clearance and evening parking. The Stockade Association will create a map showing off-street parking options for Stockade residents.	Medium-Term/Long-Term	Stockade Association, City of Schenectady	Stockade Association, City of Schenectady
Urban Forest Maintenance	Ensure the maintenance of the urban forest with a 1:1 tree replacement policy.	Ongoing	Stockade Association, ReTree Schenectady	DEC, Retree Schenectady

Typical Costs

Typical costs for streetscape improvements are as follows:

- Tinted concrete sidewalk: $80-$100 per square yard (source: 2019 City of Schenectady bid pricing figures)
- Granite curbing: $80 per linear foot (source: previous bids and online research)
- Blue stone sidewalk: $25 per square foot (source: previous bids and online research)
- Reused slate sidewalk: $18 (source: previous bids and online research)
- Street trees: -$250 to $350+ (source: DRG estimate)
- ADA curb ramp: $3,650 each[1]
- LS Type (ladder) crosswalk: $1,200 each[1]
- Raised crosswalk: $15,000 each[1]
- Mini roundabout: $175,000 each[1]
- Pedestrian push button on existing signal: $250 each[1]
- Bicycle symbol markings: $1,575 per mile[1]
- Arrow pavement markings: $1,575 per mile[1]
- Shared pavement marking (“sharrow”): $3,675 per mile[1]

[1] Source: May 2018 NYSDOT Quick Estimator - Upstate

Grant & Funding Resources

Possible funding and grant resources are listed below from local, state, and federal sources. As grant deadlines and opportunities change frequently, this is not an exhaustive list of opportunities available to the Stockade Association for implementation of the Comprehensive Streetscape Plan or a guarantee of their availability from year to year.

State and Federal Resources

- Capital District Transportation Committee (CDTC) - The City of Schenectady could submit funding requests for roadway upgrades (focused on road, sidewalk or bike-related improvements but potentially depending on the project, include other streetscape elements like lighting and street trees) to the CDTC. CDTC is the Region's Metropolitan Planning Organization and they are responsible for allocating federal funds for projects in the region. These projects would likely come out of the Transportation Alternatives or CMAQ funding lines (this is very competitive funding) though the TIP is also a potential for larger projects. www.cdtcmpo.org

- Department of Environmental Conservation (DEC), Urban and Community Forest Grants - According to the 2018 grant description, the grants fund tree inventories and management plans, tree planting, maintenance, and education programming. Grants range from $11,000 to $75,000, depending on municipal population. Some categories require a 25% match of the grant amount. https://www.dec.ny.gov/lands/5285.html

- The Regional Economic Development Councils (REDC) – The REDC developed a regional vision and strategic plan to serve as a roadmap for guiding each region's efforts. www.regionalcouncils.ny.gov

- Downtown Revitalization Initiative (DRI) – This is a competitive program where cities compete for $10M in grant funding to improve downtowns. This initiative must have an economic development focus and would be submitted for consideration by the City of Schenectady. Communities are nominated by the REDC's: https://www.ny.gov/programs/downtown-revitalization-initiative.

- NYS Consolidated Funding Application (CFA) – Each year, NYS solicits for projects through a program that has rolled-up just about all of funding application processes for NYS-agency funding requests into a single application process. The 2018 funding guidelines are found at: https://regionalcouncils.ny.gov/sites/default/files/2018-04/2018ResourcesAvailableGuide_0.pdf

- Stockade Neighborhood Flood Mitigation Project – This FEMA project will assist property owners in preserving their homes and properties by evaluating flooding, examining alternatives, and selecting preferred flood mitigation strategies for the area bounded by: Front Street, the CSX Rail Line, the Mohawk River and Cucumber Alley. With ~$7.5M for construction in Phase 2 of this project, there is potential to improve the streetscape as part of large-scale property construction activities. It is also important to note that should streets be raised, widened, or new street connections created, it would be important to utilize the appropriate street typology for the installation of new streetscape improvements.

Local Resources

- The Schenectady Metroplex Development Authority provides investments within its service area focusing on economic vitality and quality of life. www.schenectadymetroplex.com
- City of Schenectady & Schenectady County Industrial Development Agencies – The City of Schenectady and Schenectady County have IDAs that both have the same focus on "...sustainable commercial, industrial, research and recreational facilities and projects." While limited in potential within the Stockade, there may be opportunities to obtain assistance through the IDAs for specific projects.
- Carlilian Foundation - There are a few grant opportunities for projects within Schenectady County including Community Grants for capital improvements and the Green Spaces Initiative. https://www.carlilianfoundation.org/
- Golub Foundation - The Golub Foundation supports health and human services, arts, culture, education, and youth activities. https://www.pricechopper.com/apply-support
- Schenectady Foundation – There are several grant opportunities from the Schenectady Foundation for neighborhoods, open grants, and micro-grants: (https://www.schenectadyfoundation.org/page/grants-3.html#our-grants). As part of the Thriving Neighborhood Challenge, grants are available for the following categories: beautification, environment, public safety, health and well-being, walkability, community building and citizen engagement, accessibility, public art, and educational themes. Up to $100,000 was available in the last round. http://www.cityofschenectady.com/DocumentCenter/View/2244/Thriving-Neighborhoods-Challenge---Information
- Wright Family Foundation - This foundation focuses on sustainable impact grants at a minimum of $100,000, but smaller grants may be considered. Focus areas include: neighborhood revitalization, jobs and career support and/or education. http://www.wrightfamilyfoundation.org/index.aspx

On the Opposite Page: Elevated home on Washington Avenue. Above: Image of flooding of the neighborhood courtesy of the Schenectady County Historical Society.