



COLLEGE OF AGRICULTURE AND NATURAL RESOURCES
Department of Plant Science and Landscape Architecture

Re-imagining North East Street

A study by the University of Maryland Landscape Architecture Program, January-March 2015

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Executive Summary

“Re-imagining North East Street” was a collaboration between The City of Frederick, the Partnership for Active Learning in Sustainability (PALS), and the Landscape Architecture Program at the University of Maryland. In January 2015, University of Maryland graduate students initiated a two-part study of Frederick’s North East Street, defined as the corridor bounded by North Market Street in the north and Carroll Creek Park to the south. To the west is the Frederick Historic District, which expands eastward into the North East Street corridor in the blocks between Carroll Creek Park and North 5th Street. East of North East Street, new residential development was under construction or well into the planning approval process.

The North East Street corridor is characterized by diverse uses such as light manufacturing, warehousing and distribution, automotive services, commercial retail, and a mix of housing types. Its proximity to the densely built historic city center makes it a prime candidate for new development that will accommodate a growing population.

This two-phase study identifies cultural and natural resources that exemplify the character of Frederick east of the historic district. It also identifies some of the problems posed by existing circumstances and anticipated new development. The study assesses strategies for increasing the density of the built environment while improving ecological and transportation connections throughout East Frederick and into the historic city center. The study process recognized the scope and character of business opportunities, introduced alternative residential development scenarios, and recommended civic park, open space and street improvements that will encourage walking and bicycling for healthy, active lives. The urban design proposal emphasizes resource management, spatial organization, and urban landscape character.

Phase I took place during the three-week winter term. Graduate students in Landscape Architecture and Public Policy conducted a study of the geographic area associated with the North East Street corridor and accessed the broader context that included the Monocacy River and Carroll Creek watersheds. Their study resulted in a general planning strategy for future sustainable development. Phase II took place in the first half of the spring semester, resulting in a proposal for responsible urban development and specific recommendations for improvements to North East Street.

Students presented their study to the City of Frederick Planning Department and the work was reviewed at the University of Maryland in January 2015. The feedback from both presentations informed more detailed studies conducted during Phase II, which were reviewed at a subsequent meeting in Frederick (March 12, 2015).

GENERAL RECOMMENDATIONS

- Preserve, protect, and create open space that will provide recreation, increase forest cover, diversify the ecology, enhance migration routes, reduce storm water runoff, replenish the aquifer, and improve water quality in Carroll Creek and the Monocacy River.
- Connect existing city streets with new street extensions that will improve pedestrian and vehicle access, disperse automobile traffic and reduce congestion on major streets, and establish a clear orientation between Downtown Frederick and neighborhoods east of North East Street.
- Create “Complete Streets” that are safe, comfortable, and environmentally friendly conduits for pedestrians, bicyclists, and drivers; that improve storm water management practices; and that contribute to a rich and vibrant civic life.

- Encourage future development that will complement adjacent historic neighborhoods, balance live-work-play opportunities, and establish a strong sense of place based on Frederick’s historic past and its sustainable future.

Introduction and Goals

The planning and urban landscape design studios challenged students with the task of developing a new sustainable character and identity for North East Street. Analysis of the corridor included two visits to Frederick. Students had the opportunity to walk throughout the study area and meet with the City’s planning department staff and community leaders. Students documented the current circumstances, researched its history and evolution, and became better acquainted with its issues and opportunities.

Initially, the students considered the corridor’s most outstanding characteristics to be its diverse and somewhat incongruous land uses, its ill-defined street boundaries, and the lack of safe pedestrian and bicycle environments. Yet they also discovered a valuable “working” neighborhood—an auto-centric, industrious, in-town service and production center. Property values and rents are low, making this an affordable neighborhood for start-up entrepreneurs and independent businesses. As a wider, more open street in the northern half, it offers an easily accessible means of circumventing the narrow, busy streets of the historic downtown.

The corridor’s landscape and urban character north of Carroll Creek Park has two distinct personalities. One respects the building traditions of the past; the other reflects the contemporary needs of progressive industry and suburban commercial needs. It displays a practical, down-to-earth attitude in its continuous use of vernacular buildings, its embrace of commerce, and the energy of the new. Its modest housing stock, which ranges from 19th century cottages to mid-20th-century suburban homes, are within walking distance of shopping centers, warehouses, factories, and repair shops.

As the City’s population continues its steady growth—a nearly 27 percent increase between 2000 and 2013 (city-data.com)—citizens and planning experts have voiced a strong desire to explore and re-imagine this previously underappreciated “urban edge” as a viable and integral part of the downtown core. This is a once-in-a-lifetime opportunity to create a neighborhood that brings economic, social, and environmental distinction to Frederick’s east side.

As the subject of one of the city’s Small Area Plans, East Frederick has unlimited potential to meet the needs of a growing population and a robust economy. It is primed to flourish as vibrant urban neighborhoods that will support new jobs and industry, provide varied residential options, improve the ecology, increase tourism, and create a strong sense of community. Ultimately, North East Street will establish a rich mix of uses that will weave seamlessly into the City’s urban fabric.

STUDENT LEARNING OBJECTIVES

- Establish a firm understanding of methodologies for data collection, synthesis, and interpretation.
- Develop the ability to define and explain key terms and concepts in urban planning and design.
- Establish a large-scale planning vision that protects natural systems while increasing density in the built environment.

- Apply responsible planning and design strategies that increase forest cover, improve water quality encourage economic development, protect and increase jobs, provide varied residential options, create safe streets for pedestrians and bicyclists, and improve traffic flow.
- Transform underused and visually compromised neighborhoods into ecologically sensitive, economically viable, and socially satisfying places of distinction and beauty.
- Develop a vibrant civic environment by encouraging industrial, commercial, retail, and residential development along tree-lined streets, bikeways, and sidewalks that connect to parks, greenways, and recreational activities throughout the City.

SITE ANALYSIS

Regional Influences: Physiography and Development

Frederick is the regional center for central Maryland with a population of about 67,000, which is expected to grow to 97,000 by 2030. It is at the intersection of two major interstates creating a regional relationship to the port city of Baltimore (I-70) and Washington, DC (I-270). With limited employment growth planned in Frederick County, it is anticipated that much of the new employment growth in the region will occur within the City's boundaries (East Frederick Rising, 2010).



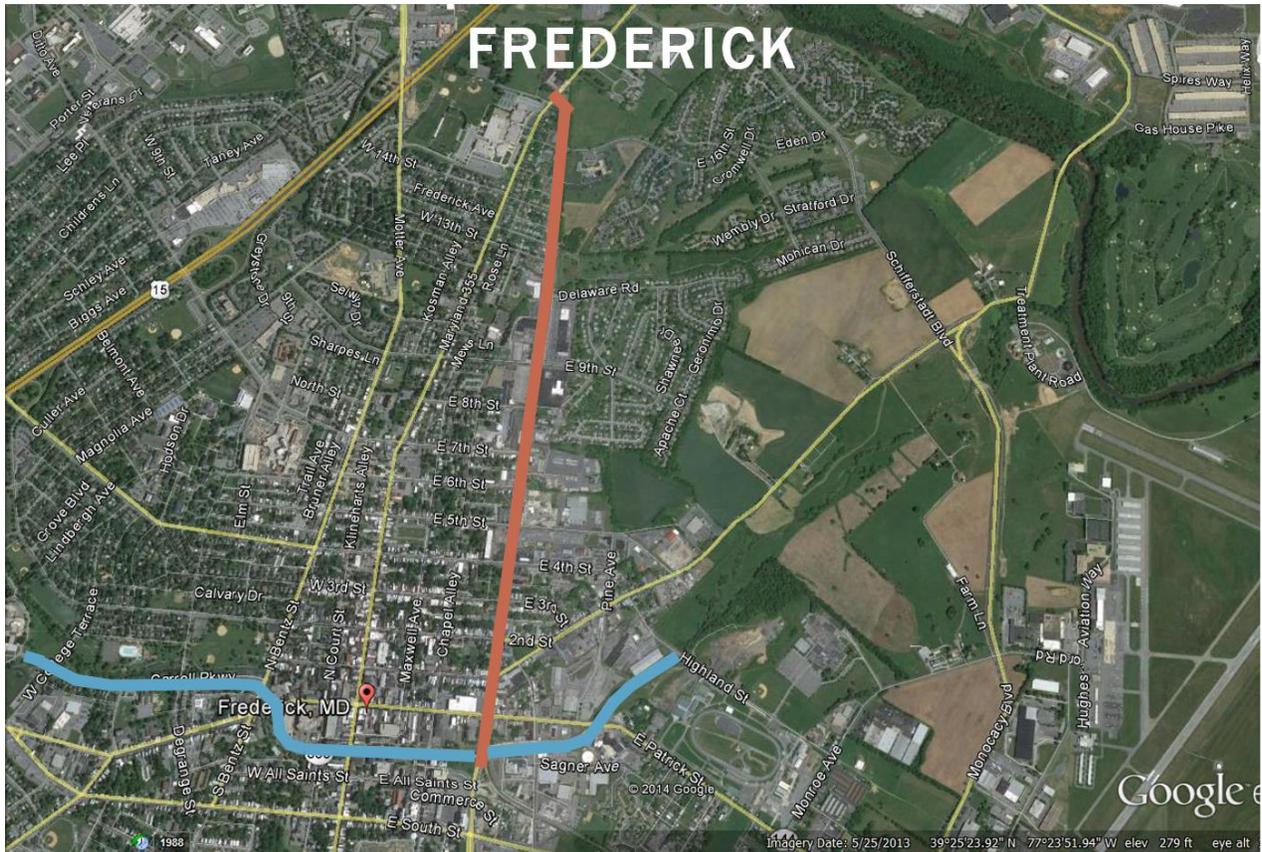
Frederick's location in Maryland's Piedmont region, bounded on the west by the Blue Ridge Mountains of the Appalachian Mountain Range, gives it a distinctive physiographic presence and a favorable environmental character. Catocin Mountain to the north and west of the City is a prominent feature, creating a strong visual backdrop from the broad plateau below.

<http://www.findyourspot.com/MD/Frederick>

Out of the mountains flow the streams and rivers that have come to define the City of Frederick—Carroll Creek through the middle of town and the Monocacy River to the east. The annual flooding of Carroll Creek and subsequent property damage and personal injury caused the City to re-think its relationship to the creek. Following the disastrous floods of 1972 and 1978, a flood control project redirected the creek through five rectangular concrete conduits and built a linear city park above the massive engineered structure. Carroll Creek Park, initiated in 1991, is in the final phases of development. The park and underground conduit terminate just beyond the East Patrick Street Bridge, where the open water flows into a wetland on its way to the Monocacy River. The University of Maryland Landscape Architecture Program recently conducted a study with PALS for the Carroll Creek WildlifeRecreation Area (2014).

Carroll Creek Park has been a catalyst for historic preservation efforts and has inspired new economic development in the downtown. East Street intersects the park three blocks from Market Street, the "Main

Street” of Frederick. Located outside the mercantile and residential center, East Street has long been an important location for industry and commerce, thanks in large part to its railroad connections into surrounding counties and Pennsylvania. In the last half of the 20th century, the area has welcomed manufacturing and services as demanded by the times, much of it related to the sales, service, and repair of automobiles. Low land values have allowed this area to continue to attract businesses that might otherwise have moved farther away from the city center and the convenient access to the goods and services—and the clientele and employees—that the city offers.



The study area for re-imagining North East Street (red) starts at Carroll Creek Park (blue) and continues north to Delaware Road. North East Street terminates at its intersection with North Market Street.

Historic Background: Transportation, Industry, and Culture

An exploration into the history of Frederick reveals that the City experienced, much as the rest of the nation did, a post-Civil war trend of people moving into urban centers during the rise of industrial development and production. As a gateway to the Appalachian Mountains, Frederick became a major player in westward expansion. The City's east side, downstream and downwind of the residential



Glass Factory Business Condominiums
Image: LoopNet at <http://www.loopnet.com/>

neighborhoods and the mercantile district, was a prime location for receiving raw materials from the surrounding region and for manufacturing products that were in high demand. The distribution of goods by way of the National Road and the new railroad lines into Pennsylvania extended Frederick's reach into a large geographic area during the late 19th and early 20th centuries as Frederick's economy flourished.

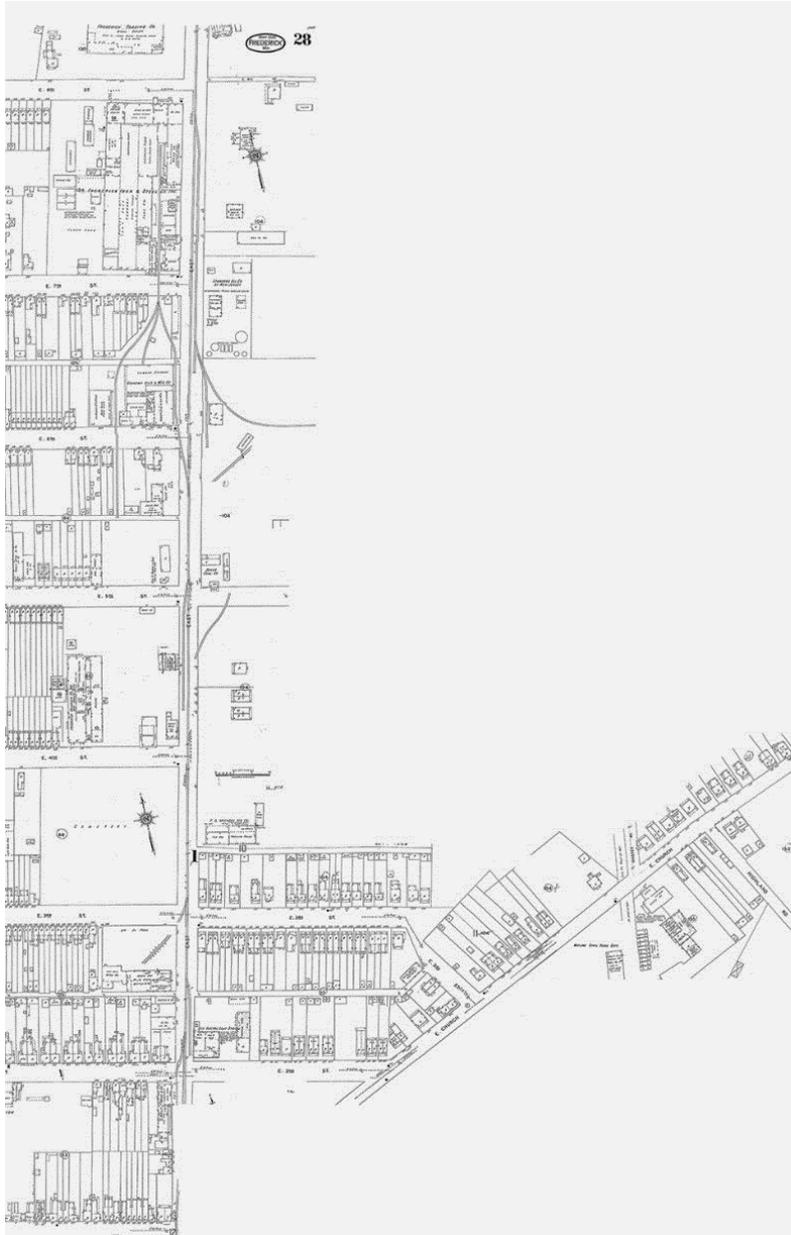
Through the second half of the 20th century following the world wars, the few remaining manufacturing facilities gradually began to shut their doors as competition increased with the rapidly expanding international economy. With low property values and ample room to spread out, light industrial businesses began to settle in the east side of town. The area developed a distinct working class presence and affordable homes sprang up in nearby subdivisions like Monocacy Village and Monocacy Meadows. Convenient auto-based services and shopping centers soon followed and many utilitarian buildings were constructed to meet the demands of this new economy.



Left: Monocacy Village Shopping Center (Image: <http://www.fbpleasing.com/retail.htm>).

Center: East Street Plaza, 501 North East Street (Image: LoopNet at <http://www.loopnet.com/>).

Right: 307 East 9th Street (Image: <http://www.fbpleasing.com/retail.htm>)



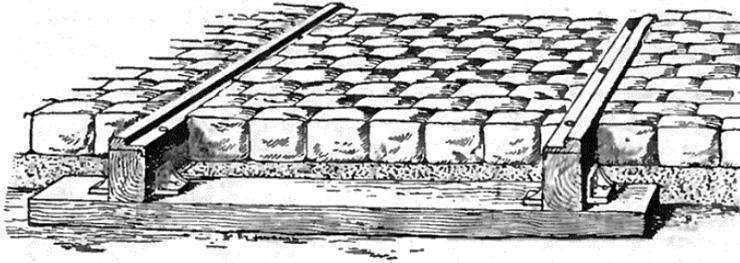
Between 1904 and 1944, the Sanborn Fire Insurance Company mapped the City's changing landscape. East Street, in particular, is documented in a series of maps that identify the influence of the Frederick and Pennsylvania Railroad, later the Pennsylvania Railroad.

As commerce took advantage of fast and efficient transportation of goods, storage yards, transfer depots and factories grew up along the length of the rails and trains were coaxed to successful enterprises on spurs from the main line.

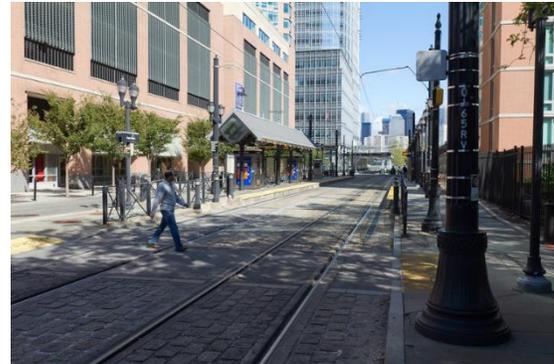
By the end of World War II, trucks replaced trains and the railroad right-of-way was overlaid with a road surface that would accommodate them. Today the rails are visible in the roadbed and the open tracks, together with many extant buildings of the same period, tell the story of Frederick's past industrial landscape. These fragments of the past are worth preserving so future generations can see the complete story of Frederick. They might also be reused for a light rail or trolley

system in the future.

Mapping History: The Sanborn maps (source: Library of Congress)



Train and streetcar rails throughout the City were imbedded in the pavement, making them negotiable for wagons, horses and eventually for cars, bicycles, and pedestrians.



On East Street at East Patrick Street, looking north, railroad tracks are still in evidence (above left). In cities where trolley tracks are still (or again) in use, such as Jersey City, New Jersey, imbedded rails can be beautifully integrated into the urban streetscape (Image: Will Sherman, <http://cityphile.com/photo/man-walking-across-light-rail-tracks-at-essex-street-station/>)

[East Street Rails with Trails](#), a 2013 study by Toole Design Group for the City of Frederick, highlights the imbedded rails and the historic influence of the Pennsylvania Railroad. The study honors that history in its proposal to preserve the rails in a bikeway system that references the railroad name in trail identity logos, markers, signage, bike racks, information kiosks, and furniture.

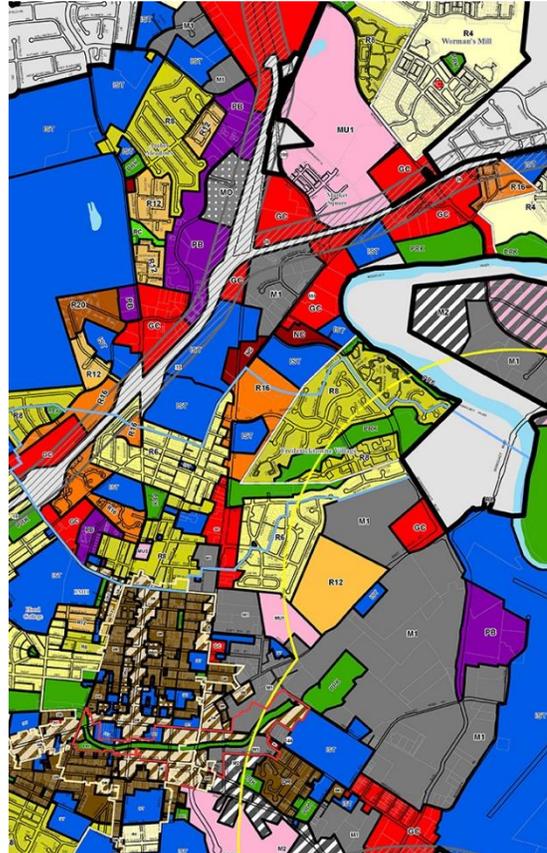
Existing Building Character: Reflections on a Century of Adaptation

Many buildings that served as depots, warehouses, and manufacturing centers still exist, and have been in constant use, modified slightly to accommodate contemporary needs. The Roads and Rails Museum (left) is a good example of how such a building has been put to a new use. Another example is the Elite Feet Dance Studio, which was once the Moxie Machine Company.



Zoning and Current Developments

Cities have traditionally used Euclidean zoning to segregate land uses and prevent potential conflicts between disparate uses. This method has proven to have its limitations, especially when a more flexible mix of land uses can bring more activity throughout the day and into the weekend. Daytime office and light industry uses can be paired to great advantage with the evening and weekend activities of residential, retail and entertainment uses, all of which energize civic life on the street.



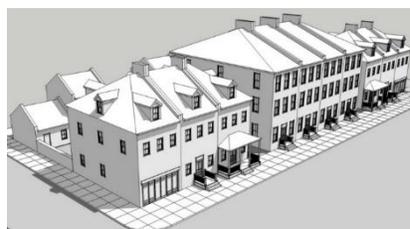
For a new generation of urban dwellers, this mix of uses creates a highly desirable environment, one that is more walkable, using fewer resources with less energy output.

One zoning technique, Overlay Zones, allow exceptions to restrictive zoning and have been used to establish appropriate plans that create diverse urban neighborhoods. An Overlay Zone along North East Street will allow Frederick to anticipate future growth and accommodate changing perceptions of the City.

Another technique is form-based codes, which can create clearly defined spatial outcomes, well-articulated building features, and

ecologically sensitive landscape standards that set the stage for a vibrant civic realm. Form-based codes can translate into compact, efficient and lively urban development, instead of sprawling farther into the outer suburbs and adjacent farmland.

With Overlay Zones and form-based codes, a responsible Small Area Plan will aspire to create pleasant and affordable urban conditions for a new generation of Frederick citizens. Recent studies, such as [East Frederick Rising](#) and the [South East Street Master Plan](#) (by Design Collective) are excellent precedents for how future urban development can look beyond zoning traditions and



create memorable places that are based on a thoughtful and articulate vision of social, economic, and environmental sustainability.

Recent Development Trends



The Nicodemus project (left) and East of Market (right).

Frederick has become a desirable destination for buyers in search of affordable homes, many of whom work outside of Frederick in Washington, DC, or Montgomery County. Builders have responded by constructing new homes throughout Frederick County and, most notably, on the east side of the City of Frederick.

By the end of 2015, two new residential developments will have added almost 600 homes to East Frederick—and more are in the planning stages. The Nicodemus project will have 444 homes, ranging from four-story townhouses to single-family houses. East of Market, an apartment development on North East Street near Delaware Road, will have 160 units.

Although neither development incorporates significant retail, both are within one mile of Market Street, making them close enough for a bike ride or a brisk walk into the downtown. Unfortunately, the streets connecting them to downtown are not safe for pedestrians and bicyclists. Fortunately, North East Street is conveniently closer to these new neighborhoods and could offer walkable, bike-friendly access to shopping, recreation and work environments, reducing the number of daily car trips, clogged streets, and polluted air. This study offers a plan that will bring the downtown further east and add live, work, and play environments that are healthy and sustainable in the long term.

DEVELOPMENT AND SUSTAINABLE GROWTH

Improve Connectivity with Green Infrastructure and Street Grid Connections

As the population of Frederick continues to climb and demand for housing, businesses and services grows, there will be increased pressure to build on the green fields beyond the City limits. The City and County agree that growth and development would best take place within the City, where development can be more compact and efficient.

The City has the engineering infrastructure—streets, water, sewers, and power—to absorb future commercial, residential, and industrial development. In recent years, the focus on potential growth has been in East Frederick, where underused and undervalued properties await a major change in direction and support. The City appreciates the need to plan for greater building density, more integrated land uses, better transportation choices, and higher quality, walkable living environments. Central to this is the making a local economy that increases jobs and develops a strong tax base, which will secure the financial resources to afford the best municipal services, schools, and educational programs within a civic culture that fosters the arts and healthful living.



GREEN INFRASTRUCTURE

Anticipating that the North East Street corridor will develop into an area of increased residential and commercial building density, the City should establish an integrated approach to land use and open space and set aside large areas of green infrastructure to offset the anticipated increase in impervious surface.



The proposed areas are highlighted in lime green, while existing vegetation is shown in dark green. The objective is to build on existing vegetation to create continuous flows of green space to improve stormwater management. The increased open space also provides a more pedestrian-friendly environment, further promoting walkability.

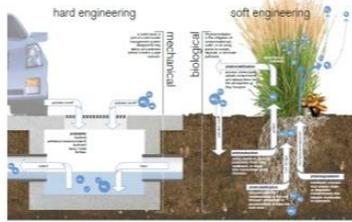
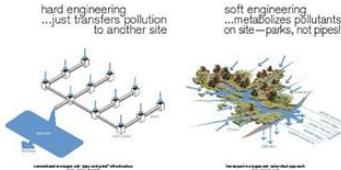
Proposed green infrastructure connections:

- YMCA to Monocacy Village Park
- East of Market Street to the Monocacy River, behind the Northhampton Manor Health Center and adjacent to Canterbury Station to the Monocacy River
- 7th Street Extension to open space north of 5th Street, connecting to the conservation areas of the Nicodemus property
- 5th Street green space to Pine Avenue
- Church Street Triangle

green space between East Second Street and East Church Street



Low Impact Development (LID) is an ecology-based stormwater management approach that favors soft engineering to manage rainfall and surface water runoff through a vegetated treatment network.



Green Infrastructure: Greenways, City Parks and 'Complete' Streets throughout East Frederick neighborhoods

12

Benefits of green infrastructure:

Types of green Infrastructure Approaches/Projects

- Low Impact Development (LID) is an ecologically based stormwater management approach favoring soft engineering to manage rainfall on-site through a vegetated treatment network.
- Hard Engineering vs. Soft Engineering; Riparian Buffer Ecotones and Constructed Wetlands; Retention/Detention Pond; Streetscape Bio Retention; and Eco Boulevards.



SOURCE: KEVIN ROBERT PERRY - CITY OF PORTLAND



SOURCE: KEVIN ROBERT PERRY - CITY OF PORTLAND

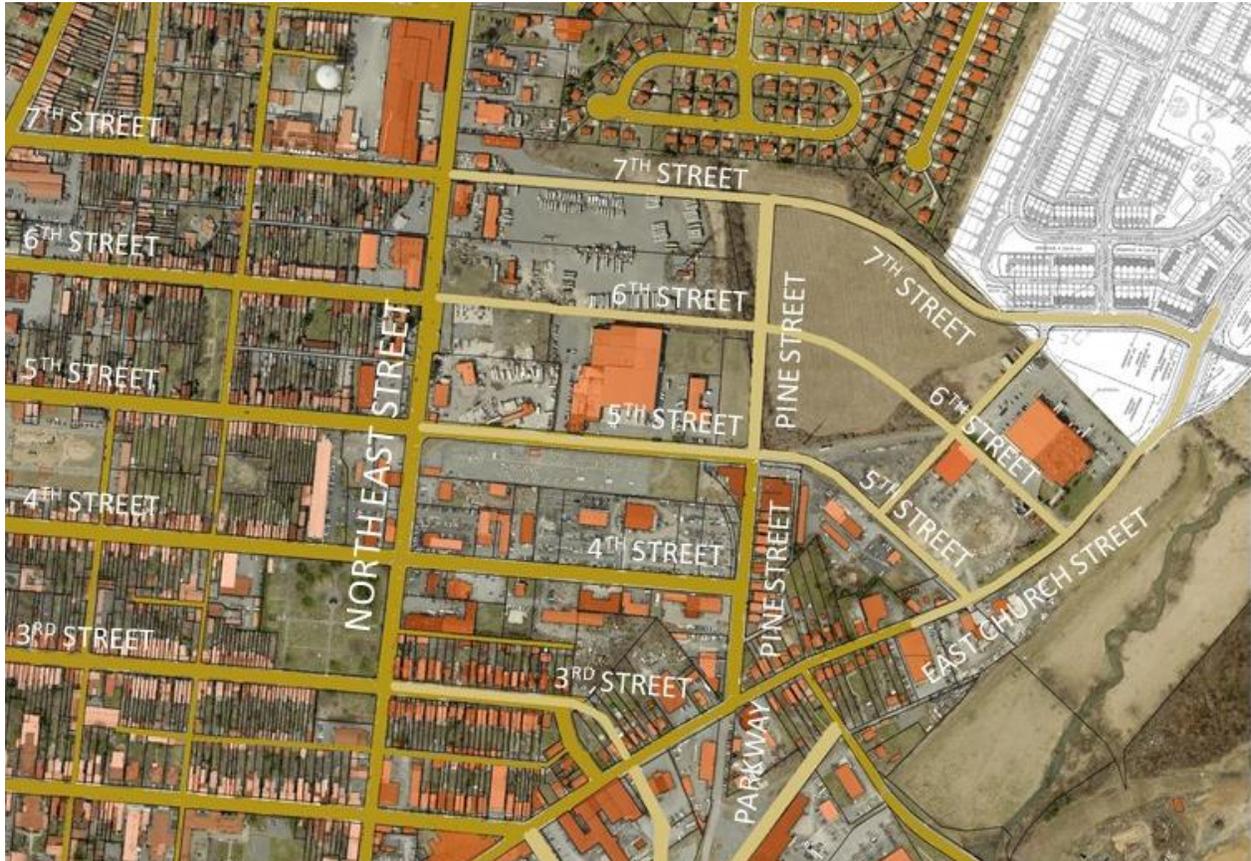
Figure 5-33: A standard curb with wings allows stormwater runoff to enter a stormwater facility. The wings help retain the side slope grade on each side of the curb cut opening.

right photo is from page 147.

These examples of stormwater bio-retention cells are from the *San Mateo County Sustainable Green Streets and Parking Lots Design Guidebook, First edition, January 2009*. The book was prepared primarily by Kevin Robert Perry of Nevue Ngan Associates in Portland, OR, with assistance from Robert Dusenbury of Sherwood Design Engineers in San Francisco, for the San Mateo Countywide Water Pollution Prevention Program. Left photo is from page 133;

STREET GRID CONNECTIONS

The map below shows the extension (in lighter beige) of several streets eastward into the study area. This knits the City together better and facilitates pedestrian, bicycle and transit travel.



BLOCK-BY-BLOCK ANALYSIS OF NORTH EAST STREET



After an overall analysis of the area, portions of the North East Street corridor were explored in more detail by separate student teams.

The plan map on this page compiles those separate studies and a block-by-block illustrated narrative describes specific recommendations for the redevelopment of North East Street.

The proposal descriptions are presented south to north.

A. Carroll Creek Park, east of North East Street

B. Carroll Creek Park to East Patrick Street

C. East Patrick Street to East Church Street

D. 4th Street to 6th Street

E. 6th Street to 7th Street

F. 7th Street to 9th Street

G. 9th Street to Delaware Road

A. Carroll Creek Park to North East Street

This detailed study area is between Carroll Creek Park and Church Street, from North East Street to Highland Street. It includes a triangular property at the corner of East 2nd Street and Church Street.

The area is currently dominated by asphalt, large industrial warehouses, electrical utilities, and some historical factories. Nearly half the area falls within the Carroll Creek floodplain, which was the driving force behind the design considerations for the area.

The City's plan for this area identifies the land north of Carroll Creek to be set aside for open space as a large park, similar in scale and character to Baker Park on the near-west side of town. This site, a "Baker



Park East," is an excellent opportunity to slow surface water runoff, capture rain water for future irrigation needs, and filter stormwater that naturally flows toward what used to be the natural bed of Carroll Creek.

The proposed park location is ideal for the anticipated population growth in East Frederick and the more immediate growth from the Nicodemus development.

Programmable open space will create a continuous spine of city parks that will provide outdoor activities—for

residents and visitors alike—running from Baker Park to the Monocacy River.

The eastern end of this area, which currently has several large warehouses such as Mid-Atlantic Mailbox Inc. and the Alleghany Electric Power Company, is within the 10-year flood plain. The area could be developed into an urban agricultural farm and community garden. *"Urban farming has been proven in many studies to involve city dwellers in healthy, active work and recreation"* (Bellows et al 2003). Urban farms can supply a substantial source of healthy food to a new urban area such as East Frederick, while providing additional benefits of green infrastructure in the urban context. This area could host garden workshops, weekend markets, and provide room for year-round greenhouse production. As a former hub of agricultural production in Maryland, Frederick recall its agricultural heritage by supporting an innovative approach to sustainable food sourcing.

This future park also offers an another design feature—"Pine Parkway," a pleasant drive curving along the park's north edge. By extending Pine Avenue south of Church Street, the new park boulevard would

connect with Patrick Street west of the current Potomac Edison Building. Because this building would now sit within the park context, it could be redeveloped as an indoor recreation center. The building's approximately 36,000 square feet of covered floor space could host the sports and athletic needs of this growing urban area. Redevelopment could include various outdoor facilities such as basketball courts or ice rinks. Off-street parking lots would have up to 60 spaces, which should be designed using the latest technology in permeable paving and bio-swales to treat all surface run-off.

The Pine Parkway should be designed as a boulevard, providing a pleasant shady drive and promenade that can also intercept stormwater. With a total right-of-way width of 94 feet (including sidewalks and up to building setbacks), it would consist of two 11-foot-wide driving lanes, a 14-foot-wide planted median (with periodic breaks for turn lanes), two 5-foot-wide bike lanes, 9-foot-wide parallel parking lanes on each side, and 15-foot-wide tree-lined sidewalks on both sides.

Curbs extensions at intersections will frame the parking lanes and create pedestrian-safe crossings. The planted median would serve as a bio-swale and the sidewalks' large street trees in large sunken planting beds will serve as rain gardens for stormwater capture and treatment. Permeable pavement in the parking lanes will help reduce the amount of surface water flow into the sunken tree planters. Pedestrians will be able to safely and comfortably walk along tree-lined sidewalks on both sides of the boulevard. Along the park edge, an additional bio-swale will collect excess stormwater during heavy storms, significantly decreasing the need for traditional storm sewers.

Visitors driving to the park could park along the road under the shade of the large canopy trees. Bicyclists would have a safe and pleasant route with connections between downtown and neighborhoods throughout East Frederick. With minimal disruption through existing neighborhoods, this parkway could be extended to 7th Street via an extended Pine Avenue and connect new development in the north to Patrick Street in the south.



Church Street/3rd Street Triangle and a new “Pine Parkway”³¹

Along the north-northwest side of the boulevard, new townhomes and apartment buildings will parallel the graciously curving tree-lined roadway and generous sidewalks. With views of the park, these homes will become a highly desirable downtown address. Three-and-four-story buildings will extend the scale and character of historic Frederick, and well-placed ground-floor retail in a designated neighborhood commercial area will offer sidewalk cafes, bakeries, sandwich shops, bike rentals, and refreshments for

residents and park users. Off-street parking located behind the buildings will maintain a consistent building line along the boulevard facing the park.

The historic Ox Fibre Brush Company building, at 400 East Church Street, is currently occupied by Goodwill Industries of the Monocacy Valley. Ox Fibre, which manufactured a wide array of brushes during the late 19th and early 20th centuries, sold the building to Goodwill in 1969 for \$50,000. In the Early 1970s the building suffered a major fire destroying nearly 100,000 square feet. A 2002 renovation restored one of the main buildings for office space, conference rooms, vocational and computer training, work skills classroom and various other employee related activities. The building is a beautiful example of Frederick's industrial-era architecture. The south side of the complex will face the proposed Pine Parkway, making it a prominent historic resource for the City and a valuable visual asset. Through innovative adaptive re-use, the structure could be transformed into additional apartments, retail, and office space.

The 300-500 block of East Church Street (Widener Street to Pine Avenue/Pine Parkway) has a narrow right-of-way (varying between 28 and 34 feet, curb-to-curb) that presents a challenge for developing a Complete Street. It is currently designed with one traffic lane in each direction, no parking on the south side, and parallel parking on the north side. The sidewalk along the Goodwill building is about 8 feet wide, curb to building, but it narrows to 5 feet at the eastern end, as the overall street width narrows to 28 feet.

On the opposite side of the street are bump-outs, which function as both stormwater treatment and traffic-calming devices. Redesigning the street should include on-street parking on this side using permeable pavers that add historic detail and signal the area's connection with historic downtown. One traffic lane in each direction, about 14 feet wide, will allow room for shared bike access. Removing two residential properties and slightly re-aligning East 3rd Street could improve the connection to the new townhomes, the Goodwill building, and the proposed Pine Parkway. The adaptive re-use of the Goodwill building will give the historic resource new life and contribute another sustainable practice to the redevelopment of East Frederick. Adaptive re-use costs 15-20 percent less than new construction and businesses could be drawn to the unique character of the historic factory.

Another redevelopment site is the triangular block created by North East Street, East Church Street, and East 2nd Street, which already includes several popular Frederick landmarks, including Frederick Coffee Company and Café, the shops in the Shab Row complex, and the Stone Hearth Bakery. An undeveloped parcel at the triangle's eastern tip is owned by the Frederick entrepreneur who transformed Shab Row into a vibrant shopping district, and it has the potential to become a memorable landmark on the City landscape. New development here could announce the Renaissance of East Frederick. It is a prime focal point for residents and visitors traveling to the City from the east. As an extension of Shab Row, this area could have additional shopping, restaurants, offices and residences. With a limited area for surface parking, below-grade parking could take advantage of the area's natural topography. This vacant parcel could accommodate a four-story structure with an approximately 20,000 square foot floor plate, for a total of 80,000 square feet of commercial, office, and residential development.

Also, this eastern tip of the triangle would be a prime location for a small park, welcoming westbound Church Street travelers into downtown. Brick sidewalks remind people that they are entering the historic downtown, leading walkers into a courtyard between the two buildings toward Shab Row. This space could host activities such as outdoor dining, entertainment, or beer gardens. Trees lining the park plaza should shade these casual outdoor activities.

The combination of new park space, a redeveloped Goodwill building, and additional construction next to Shab Row would harmoniously extend the downtown district into East Frederick. A vibrant business area, pleasant residential buildings, and an easily accessible park would work together to support the sustainable living, working, and playing in the City.

PINE PARKWAY DEVELOPMENT RECOMMENDATIONS

- Street right-of-way: 94 feet
- Two driving lanes: each 11 feet wide
- Center median and turn lane: 14 feet wide
- Bicycle lanes: 5 feet wide, with distinctive painted lane markings
- Parking lanes: 9 feet wide, with permeable pavement
- Sidewalks: 15 feet wide
- Street tree planting: In minimum 6-foot by 12-foot bio-retention cells along the sidewalk. Larger cells could hold multiple trees with shared root zones.
- Stormwater treatment: bio-retention cells parallel to the curb and in a bio-swale between the sidewalk and the park

B. Carroll Creek Park to East Patrick Street

Patrick Street divides the north and south sides of the City of Frederick but Carroll Creek Park is fast becoming the City's symbolic central spine. This linear park begins at Baker Park and runs east to Highland Street before the creek re-emerges from underground culverts on its way to the Monocacy River. Carroll Creek Park has the potential to become the gateway into the downtown at several locations, most prominently at East Street. The East Street connections to I-70 and to I-270 further south make the northbound crossing at Carroll Creek Park a unique and memorable threshold for the City.

This distinctive passage to downtown presents many outstanding opportunities to turn North East Street into a welcoming and exciting arrival to a new urban village. Located at the current eastern limits of the historic district, North East Street has the potential to develop a sense of place that preserves the integrity of its historic building stock and landscape features while, at the same time, makes a strong statement about Frederick growing into a sustainable future.

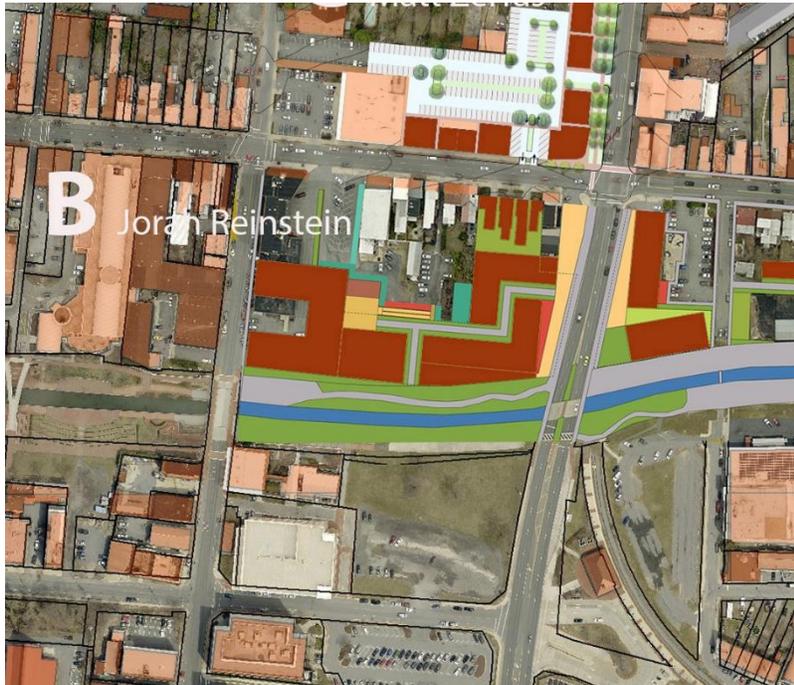
Carroll Creek Park was created above the five-channel flood control structure that carries the Creek through the City. The park is approximately ten feet above the original streambed, a change in grade that induces in the casual observer an incongruous feeling in the civic space; the illusion of a creek is hard to sustain. The blocks adjoining the creek offer tremendous opportunities for creating vibrant civic spaces but street life along the creek and on the first block north on East Street is topographically disconnected from activity within the blocks. In addition, the area's true hydrology is disguised and the apparent hydrology is disconcerting, as the creek appears to flow at a high point in the landscape rather than in a valley as it would in a natural system.

The blocks bordering Carroll Creek Park between Carroll and Wisner Streets are occupied by a number of historic buildings, including the soon-to-be-redeveloped knitting mill. These buildings warrant attention and appreciation as gems of Frederick, but are now situated in a matrix of asphalt parking lots. The design solution proposed here highlights the special quality of these buildings and reconnects their blocks to the activity of the street.

The design intent is to connect the creek and East Street topographically to the homes and businesses on the blocks, to create engaging civic space, and to highlight and protect the hydrologic processes.

DESIGN CONCEPT

Because Carroll Creek Park is higher than the historic stream valley, structures south of Patrick Street that were once above the creek are now at an elevation below the park surface. New building construction fronting Carroll Creek Park at the same elevation as the park should also establish an at-grade relationship with East Street.



A proposed Marriott Hotel, at the corner of Carroll Creek Park and Carroll Street, will establish a park-level retail presence along the park promenade, accommodating the grade difference with a lower-level garage. A similar approach could be used along the entire stretch of the culvert, as well as along either side of East Street, to bring all the block boundaries to street grade.

Underground structures built along this grade change could function both as underground parking and as the foundation for new residential and commercial buildings that could complement the vision established by the new hotel and

creek path. Thus, with no loss of parking, the street-level lots could be converted into housing and retail amenities that could define this area as an engaging southern entrance to a revitalized East Street district.

In evening the grade through fill as well as structure, opportunities also exist to extend the park setting of Carroll Creek Path and create deep urban planting space for large trees. In addition, the interior block spaces created by this new structure could provide a more enclosed alternative to the bustling street life on the exterior.

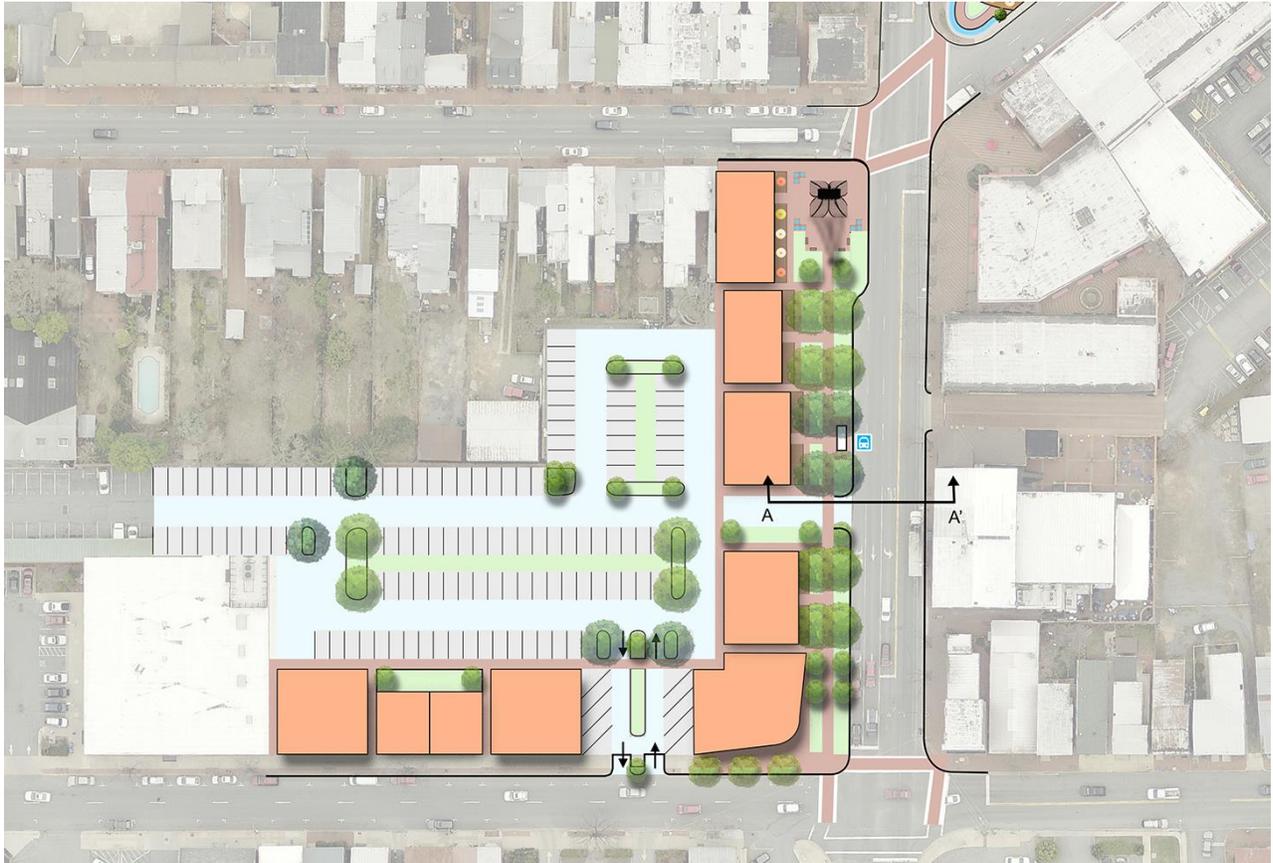
These interior spaces offer opportunities to create more intimate urban paths and courtyards. Their bowl-like topography could use stormwater to facilitate plant growth without external-source irrigation. While providing a lush courtyard atmosphere, these spaces could simultaneously contribute to stormwater filtration and improving the water quality of Carroll Creek.

RECOMMENDATIONS

- Street width: four 11-foot drive lanes, two 5-foot bike lanes,
- Sidewalks: 12 to 25 feet on the west side, 15 feet on the east side
- Street trees: double row on the west side, single row on the east side

C. East Patrick Street to East Church Street

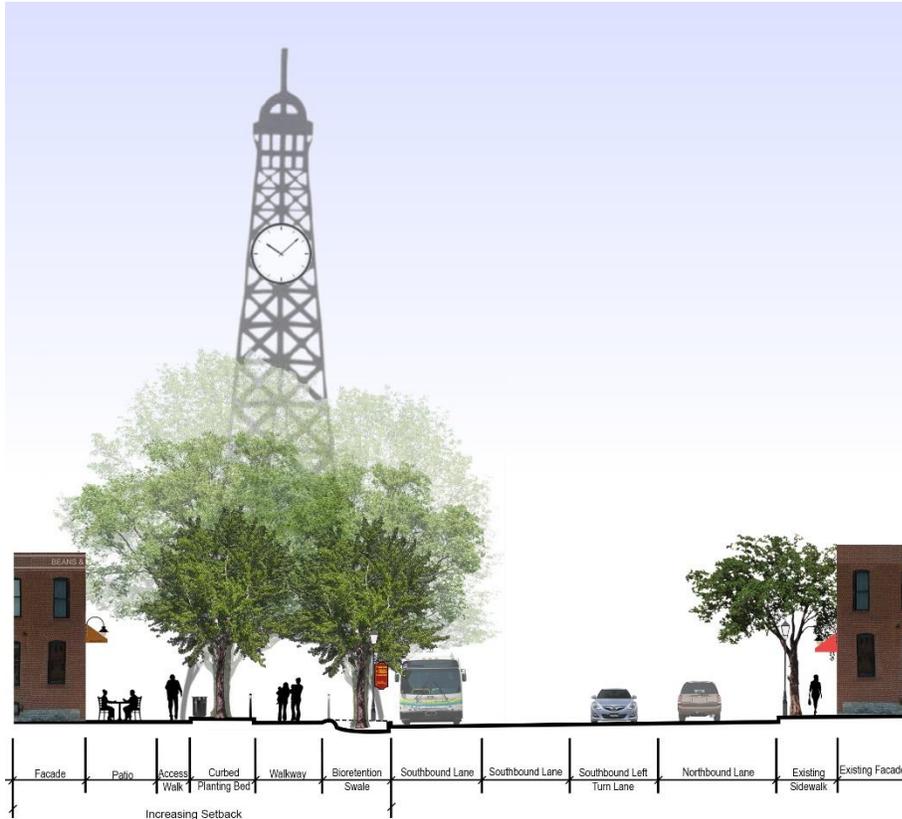
This area consists of the large US Postal Service regional office occupying approximately 1.7 acres of the northwest corner of the intersection of East and Patrick Streets. This corner is primarily a brick-walled and fenced-off parking and shipping area. On the street's east side are predominately one- to three-story, brick colonial style buildings used for retail and mixed use.



This plan proposes relocating the Postal Service facility, transforming the current warehouse and parking lot into residential and retail development along the north side of Patrick Street and the west side of North East Street. Buildings on North East Street would be set back from the curb to continue the wide plaza-like, tree-lined sidewalk proposed for the previous block between Carroll Creek Park and Patrick Street. Buildings would be taller in the south along Patrick Street, transitioning northward to two- or three-story buildings that respond to the existing building character along Church Street.

Buildings with smaller footprints would be consistent with the historic district's character. Parking should be located within the block and access to parking will be from the alleyway between North East Street and North Carroll Street, with another entrance on East Patrick Street. A Postal Service retail center with off-street parking will remain at the northeast corner of East Patrick Street and North Carroll Street.

Green infrastructure improvements on the west side of North East Street will include a wide sidewalk with permeable pavers, an allée of shade trees, and bio-retention cells along the street curb. The wide sidewalk promenade will include ample space for outdoor dining, information kiosks, bicycle parking, a bus shelter, and benches. There will be no street parking on this block and the wide planting beds along the street will act as buffers between pedestrians and moving vehicles.



At the southwest corner of Church Street and North East Street the sidewalk will “bump out” to establish a more pedestrian-focused safe crossing of both streets. A clock tower with a viewing platform will punctuate intersection and become a new landmark for the City of Spires.

Bicycle access will be consistent with the recommendations in the *East Street Trails with Rails* plan (2013), which indicates on-street shared bicycle lanes in both directions.

Throughout this block, street design should

include traffic calming devices such as bump-outs and raised crosswalks.

RECOMMENDATIONS

- Street width (curb-to-curb): 61 feet
- Three driving lanes: 11 feet wide; northbound, southbound, and left-turn lanes
- Bicycle lanes: 5 feet wide, with distinctive painted lane markings
- Parking lanes: 9 feet wide, with pervious pavement
- Sidewalks: ?
- Street tree planting: in minimum 6-foot by 12-foot bio-retention cells along the sidewalk. Larger cells could hold multiple trees with shared root zones
- Stormwater treatment: bio-retention cells parallel to the curb

EAST CHURCH STREET TO EAST 4th STREET

The Frederick Coffee Company and Café and Shab Row dominate the east side of the street between Church Street. The 2nd Street area of Shab Row consists primarily of single-story historical colonial buildings on the east. The west side has a similar character but with larger residential buildings. On the north side of the street are two- to four-story residential buildings.

Along North East Street, between 2nd and 3rd Streets, are several uses. On the southeast corner is the Roads and Rails Museum, a single-story painted brick building that spans half the block. The rest of the block's east side are attractive early 20th century housing. Uses along the block's west side are also mixed, with an attractive, two-story 20th century house, a roofing business, a winery and bistro with a small outdoor patio, and a ½-acre park with a playground.

D. East 4th Street to East 6th Street

EXISTING CONDITIONS

Travelling north on North East Street, there is little recognition that you're leaving the historic downtown. The block of East Patrick and East Church Streets is home to the post office, a low brick building fronted by a large parking lot, a chain link fence, and a narrow sidewalk. Beyond the post office, the tree lined streets, small mom-and-pop shops and restaurants, and wide sidewalks along the three-lane road are reminiscent of the historic downtown character. This street character continues for a couple of blocks, and is punctuated by Third Street Park. At 4th Street the character shifts. The street widens from three lanes to four lanes, the sidewalk narrows and then drops off entirely after 5th Street.

North East Street was the industrial side of town for many years, which shows in the present-day commercial development in this corridor. The street's character shifts at East 4th Street, becoming dominated by low buildings fronted by parking lots. At the northern end of the study area, the commercial development is anchored by two strip malls. In between these boundaries, auto related businesses dominate the commercial corridor. However, several businesses stand out from the car repair shops and junkyards; the Family Meal, a restaurant in a former Nissan dealership, the Dairy Maid milk distributor located in the Frederick Iron and Steel plant, and the Glass Factory. The single-story character of this side of East Street makes the power lines and Allegheny Power substation even more apparent.

The housing styles and neighborhood character also shift after East 4th Street. Closer to downtown, are multi-story historic row houses or detached bungalows on small lots. Their doors face the street, while narrow alleys contain detached garages. After East 4th street, there is limited housing on North East Street until you get to the Monocacy Village neighborhood. These single-story brick ranch homes set back from the cul-de-sac streets are a suburban departure from the urban pattern.

North East Street is a street divided. The only constant uniting the hodgepodge character and housing types, are the CSX rail lines running in the street. Even these rail lines are inconsistent, with some rails running in the middle of the street, others where a sidewalk would be if the sidewalk hadn't ended at East 4th Street.

NORTH EAST STREET REDESIGNED

Between 4th Street and 6th Street, North East Street is a mix of historic character, industry, and utilities. The historic character is reflected in the embedded rails in the street, the railroad style buildings on the corner of North East and 4th Street, and the Glass Works building. Prominent industries include the Food Pro, a local restaurant supplier on 6th Street, and 4th Street is lined with smaller auto-related businesses, most prominently Best Used Auto Parts and Krietz Auto Repair and Sales. The Allegheny Power substation on the corner of North East and 5th Street supplies power to the surrounding neighborhood. The challenge in this area is balancing the needs of the industrial, commercial, and utility establishments with mixed-used and residential redevelopment.

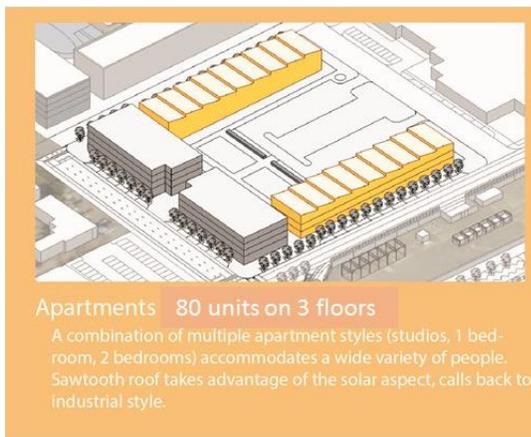
A major design influence for this corridor is recognizing that the existing industries and utilities are unable to relocate in the near future (e.g. Allegheny Power), and have been a part of the neighborhood for many years (e.g. Food Pro and Dairy Maid). These industries play an important and vital role in the City. In addition to employing City residents, they also represent a link to its industrial history. Finding a way to for industry to coexist with a re-envisioned North East Street became the focus for this design.

First the core industries were identified (Allegheny Power and Food Pro). Due to their ties to the surrounding community, it is likely that these establishments will remain for the foreseeable future. In the design proposal, they remained relatively untouched—a screening wall surrounds the substation, providing a much-needed buffer. The Food Pro distribution center retains its footprint, but its truck storage is consolidated with the Dairy Maid trucks.

Increasing connectivity on and along North East Street was also a priority. Extending 5th and 6th Streets to Church Street reinforces the existing street network and relieves some of North East Street’s vehicular traffic. With a reduced traffic load the street’s drivable surface can be reduced to two drive lanes (one in each direction), and a shared turn lane.



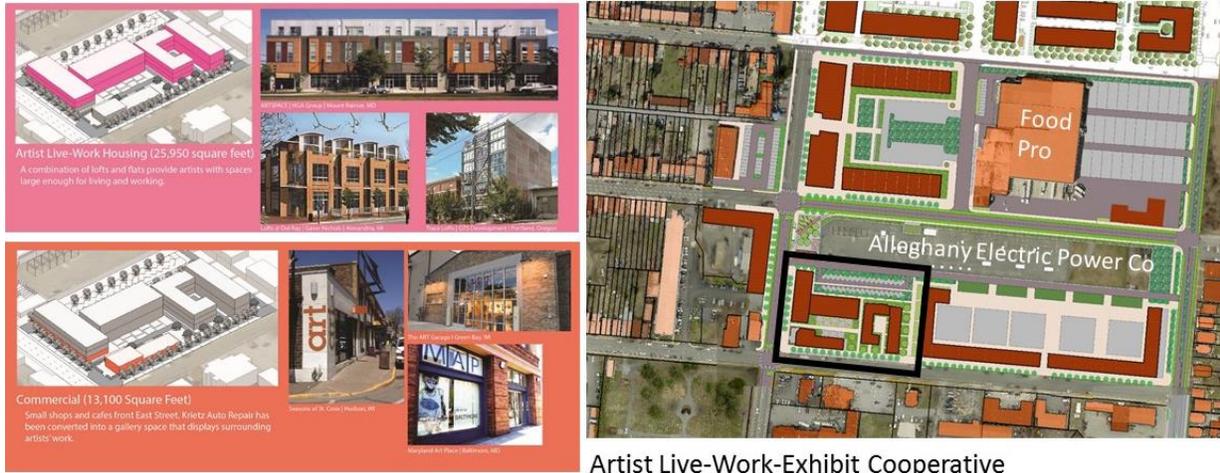
Extending 5th, 6th and 7th Streets east to Church Street provides a framework for siting new buildings. Along North East Street, mixed-use buildings with ground-floor retail will provide a formidable presence, grounding the block and allowing different building types and uses along the numbered cross streets. This pattern of a consistent frame at North East Street encourages the development of diverse neighborhoods that fit well together. The block between 5th and 6th Streets will have four-story buildings along North East Street, transitioning to three-story apartment buildings along 5th and 6th Streets to a new north-south cross street.



Allegheny Electric Power Company will continue to occupy half the block between East 4th Street and East 5th Street. Food Pro will be encouraged to maintain its operations on the block between East 5th Street and the new East 6th Street.

The proposal for the southern half of the block includes facilities for an arts community that reuses some existing buildings and bridges the gap between residential living and light industry. The existing Krietz automobile service garage could be transformed into an artist gallery and workshop, flanked by artist live-work housing. The previously discussed flexible space is behind this “Artist’s Block,” the people living in this area can utilize this area as studio space, workshops, or classroom areas.

Creating a diversity of neighborhoods not only helps define East Street, it also encourages the development of a range of housing styles, and a range of people living in these neighborhoods. Although the neighborhoods vary in their building types and uses, they are tied together by forms and materials that reference the area’s industrial heritage and the City’s existing character.



While the core industries won’t move, the remaining auto-related businesses can be consolidated. A site currently occupied by Best Used Auto Parts was determined to be the best location. Its large size allows it to accommodate multiple businesses, and its proximity to the power substation makes it undesirable for residential development. Flexible structures fronting 4th Street would provide a street presence, while the “junkyard jumble” would be hidden behind these structures. The area’s inherent flexibility makes it suitable to transition to a wide variety of new uses, for example, a community recycling/materials exchange space, a makerspace, or a co-working space.

Separate, defined bike lanes on North East Street and 5th Street make this corridor safe and convenient for bike travel. On-street parking provides areas for people to park. Wide, tree-lined sidewalks and clearly defined crosswalks increase pedestrian safety and comfort along the corridor.

RECOMMENDATIONS

- Street width (curb-to-curb): 61 feet
- Three driving lanes: 11 feet wide; northbound, southbound and left-turn lanes
- Bicycle lanes: 5 feet wide, with distinctive painted lane markings
- Parking lanes: 9 feetwide, with pervious pavement
- Street tree planting: In minimum 6-foot by 12-foot bio-retention cells along the sidewalk. Larger cells could hold multiple trees with shared root zones

E. East 6th Street to East 7th Street

The proposal seeks to make more efficient use and more broadly beneficial use of land that is close and accessible to the adjacent downtown and eastern subdivision neighborhoods. In anticipation of Frederick's expected growth over the next 10-to-20 years, it recommends increasing residential density with a variety of building types. Adding office and retail space will establish convenient, walkable services. Well planned streets will encourage safe driving and bicycling, foster pedestrian-friendly sidewalk comfort, and improve the environmental health of the City's east side.

The proposal includes compatible co-existence with industrial uses, creating a neighborhood where the workplace is intertwined with residential living, as Frederick experienced at earlier times in its history. This new neighborhood could begin to establish a return to a more integrated lifestyle, where light industry is viewed as positive force in urban life.

Proposal highlights include:

- Create a better **connected street network** by extending East 6th and East 7th Streets from North East Street to Church Street.
- Use **existing topography** placing buildings on level ground and a new park and shared use path on the mound.
- Integrate **rain gardens** that will beautify the neighborhood, provide wildlife habitat, collect surface water runoff, and allow storm water to infiltrate into the aquifer.
- Accommodate **future population growth** by adding 280 new housing units, office space, and retail shops and restaurants.
- Develop **Complete Streets** that are bicycle- and pedestrian-friendly and incorporate the latest stormwater management practices.
- Introduce **new recreation and civic gathering places** that make this area an ideal place to live, work, and play.

CREATING A BETTER CONNECTED STREET NETWORK

By extending East 6th and East 7th Street to Church Street, new development on Frederick's east side will be directly connected to the historic downtown. The improved street network and green infrastructure links will reach to the new residential development at the Nicodemus property and to the proposed mixed-use project on the Renn property. This new street network will reduce congestion on Church Street and make walking and bicycling more agreeable throughout the area.

USING EXISTING TOPOGRAPHY

The east side of North East Street between the proposed extensions of East 6th and East 7th Streets is currently used as a truck parking lot. It has few trees, a large area of impervious paving, and impervious roof surface on underused warehouses. Standing on North East Street and looking east, is a bare and exposed view. A 12-foot-high linear earthen mound extends parallel to the proposed extension of East 7th Street, then turns south to the intersection of East 5th Street at County Road. The City built the mound as visual and sound screen to shield homes to the north from the trucks and noise associated with industrial operations.

If the parking for Dairy Maid could be more efficiently consolidated on property to the south (near the Food Pro parking) or within the Dairy Maid block west of North East Street, the relatively level land would be an ideal location for a future residential neighborhood with a variety of building types. The ground

floor of new buildings on North East Street could house neighborhood convenience retail, dining services, boutique coffee shops, day-care facilities, telecommuting workspace, or other uses desirable to local residents. Several older buildings are in good condition and should remain. Their presence and adaptation for contemporary uses would add to the historic character, establish visual continuity, and create a distinctive sense of place.

The mound is a tremendous opportunity to create a unique green corridor and a shared-use path that will provide a cool and shady place for residents to walk, exercise, and relax, as well as an ecologically sound greenway connection to the proposed Carroll Creek Wildlife Recreation Area. “Mound Park” should provide views across the neighborhood and increase the urban forest in a part of the City that has lost much tree canopy over the last two centuries.

CREATING NEW RECREATIONAL AND GATHERING OPPORTUNITIES

Mound Park will be a spine of green infrastructure that will create a healthy recreation opportunity for residents, reduce the heat-island effect, sequester carbon dioxide pollution, retain and infiltrate rainwater, and provide wildlife habitat. The design uses the topography to elevate the park user above street level. The proposed linear park will include stairways at key points along East 7th Street and use retaining walls for bio-retention.

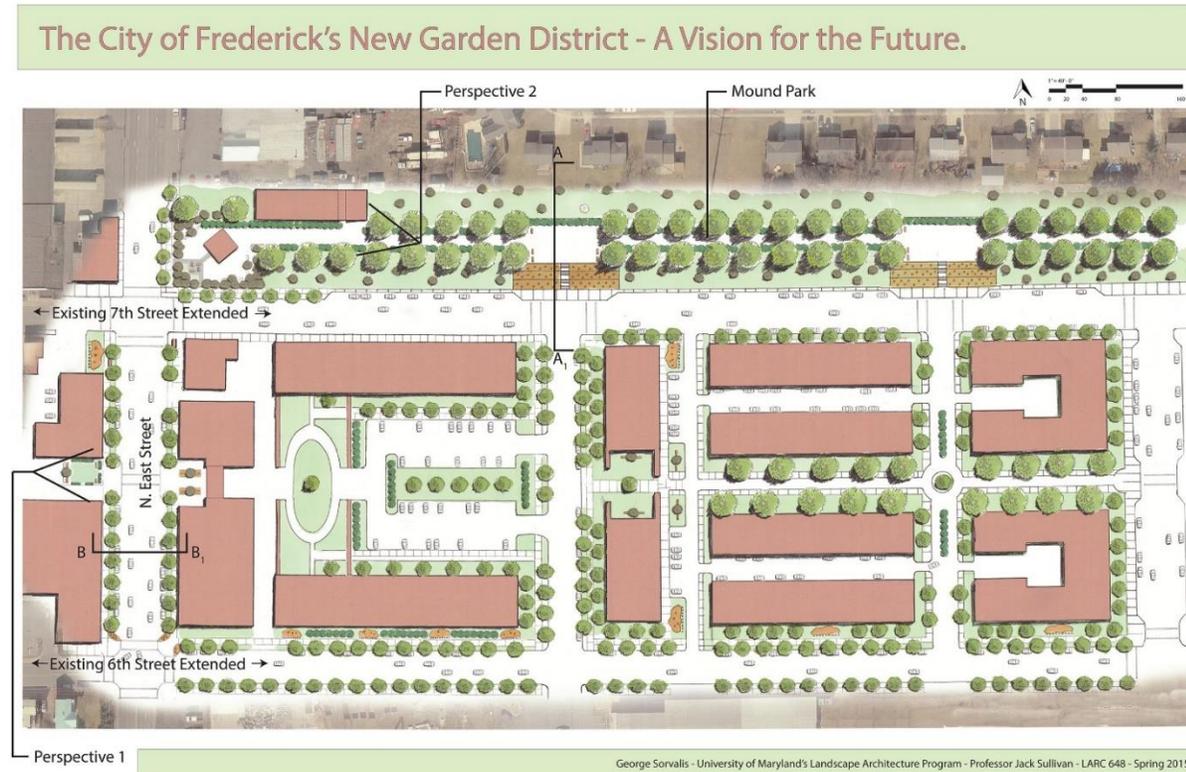
Mound Park will connect to greenways in the Monocacy Village subdivision and the greenway between Monocacy Village and the Nicodemus development. A city park anchoring the greenway at the corner of East 7th and North East Streets will include seating areas, a covered pavilion, and a picnic area. An existing long narrow shed/garage structure at the base of the mound could become a bicycle shop and rental, a café/sandwich shop, and public restrooms. Although this structure is in poor condition, renovating it will bring some of old neighborhood’s personality into the park. Mound Park will give local residents, workers, and visitors a place to lunch during the week and spend time with the family throughout the weekend.



View from Mound Park looking west and downhill toward North East Street.

ACCOMMODATING FUTURE POPULATION GROWTH

The historic merit of several existing buildings in these blocks warrants careful assessment. This proposal encourages property owners to retain and rehabilitate the buildings that face North East Street and add new buildings that will create a dynamic street environment with ground-level storefronts. High density (four- to five-story) residential and office buildings will bring a larger population and a vibrant street life day and night. Moving eastward, high-density housing will transition to townhomes and lower-density housing, providing an appropriate transition into the existing and recently developed neighborhoods of family homes.



Plan for proposed development between East 6th Street and East 7th Street, from North East Street to Pine Avenue.

The building at the corner of East 6th and North East Streets, currently occupied by Great Stuff by Paul, will remain. To the north, across Stitley Alley, a new mixed-use retail/residential building will fill the block to East 7th Street. A pocket park at Stitley Alley will balance green space with the new buildings and provide a neighborhood amenity. There will be parking for retail access along North East Street. Resident parking will be located between Stitley Alley and East 7th Street, west of the residences.

The brick building on the southeast corner of North East and 7th Streets will remain. It dates to early 20th century railroad activities. Its adaptive reuse will preserve a distinctive East Frederick character and bridge Frederick's industrial past to its sustainable future. South of this brick building, a new mixed-use building will complement the historic structures but at a scale that accommodates increased density with retail, office, and residential uses. Farther south on the same block and across a pedestrian plaza, a similar new building will complete the block's distinctive street wall created by bringing the building facades close to the wide sidewalk. A mid-block pedestrian plaza will align with Stitley Alley and an open to the east into the development's courtyard gardens. The courtyard gardens mark the western terminus of linear green space that will extend east and south toward the Nicodemus property and Carroll Creek. To assure low-

impact development and greenway continuity, this space should remain unimpeded by any future buildings. The continuous green space, privately maintained, will establish a strong visual experience that will characterize the desirable “Garden District.”



View from a new pocket park at Stitley Alley, looking east across North East Street into the courtyard gardens of the proposed mixed-use development between East 6th and East 7th Streets.

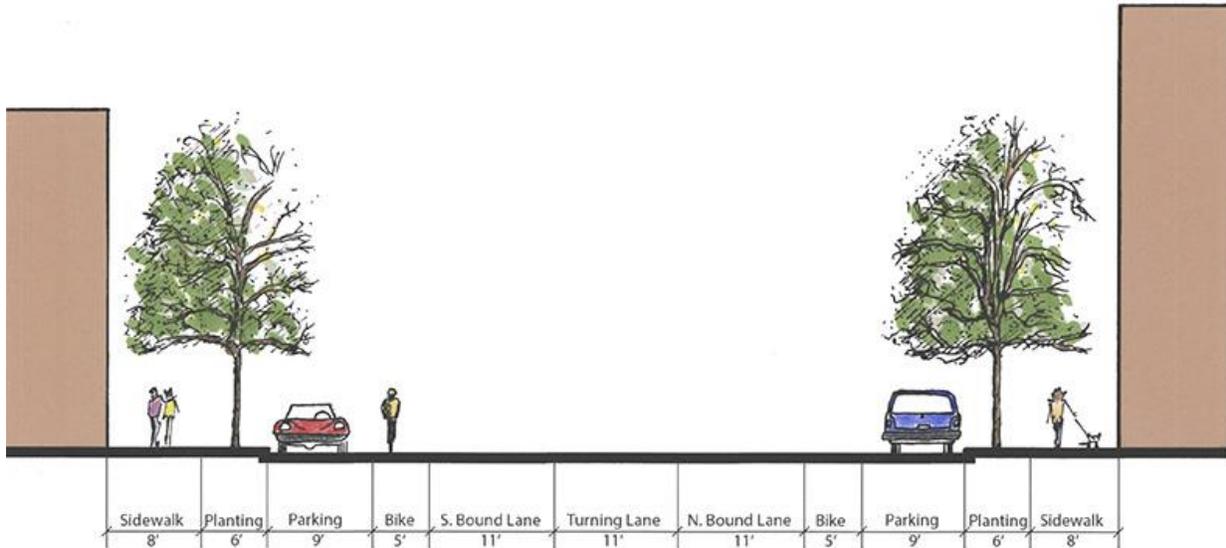
Starting at North East Street and heading east, new residential buildings will occupy the former truck parking lot and the open field on the east side of the berm. The berm will be removed to open the view eastward and allow stormwater to flow through the gardens in the new residential neighborhood.

From west to east, beginning at a small north-south vehicle alley west of the retail/office/residential buildings are:

- Two four-story apartment buildings (approximately 60 units), one on either side of a 210-foot wide parking area and courtyard garden.
- To the east, a new north-south street that gives access to parking. Two more four-story apartment buildings (approximately 30 units) flank the axis on the east side of the new street, with an 85-foot green space between them. Residential parking is provided on the block’s east side.
- Across the narrow 15-foot wide north-south vehicle alley, three-story townhouses (with garages) straddle the central axis (approximately 140 units).
- East of extended Pine Avenue, clustered single-family homes and a common greenway continue the bio-retention garden along the west-east axis. Pine Avenue continues south and connects to the proposed Pine Parkway. Bio-swales and ample tree plantings along Pine Avenue will give a distinctive identify to the Garden District.

COMPLETE STREETS

East Street has been modified to be more clearly articulated and more “complete.” The new roadway will be defined by street trees and new four-story building façades on both sides of the street. The typical street section will have a north and south travel lanes, a turning lane, and designated bike lanes on both sides of the street. There will be on-street parking on both sides defined at either end with pedestrian crossing bump outs to calm traffic and provide safe pedestrian crossings. Trees will be generously placed along the street, using large planting areas in wide sidewalks. The planting beds, below street and sidewalk level, will retain and filter stormwater runoff. Frequent bus stops have been placed for convenient access within comfortable walking distances.



Cross section of North East Street between East 6th Street and East 7th Street.

BIO-RETENTION CELLS AND RAIN GARDENS

The area's green infrastructure will include street tree plantings integrated with curb cuts to direct stormwater from the street into the tree well. An overflow drain will intercept excess rainwater that the planter cannot absorb or infiltrate. Mound Park will absorb stormwater from the shared use path along the ridge into grassy swales and gabion retaining walls. Rain gardens on private property and in public gardens, located strategically throughout the Garden District, will support a biological, or soft, stormwater engineering practices while beautifying the neighborhood.

GROWING SMART

As Frederick's population grows, concerns about water quality and climate change are also growing. Enhancing green space and stormwater management through green infrastructure should be a priority for all future development in Frederick. Sound planning strategies that balance human and ecosystem needs will create sustainable and desirable places to live, work, and play.

RECOMMENDATIONS

- Street width (curb-to-curb): 61 feet
- Three driving lanes: 11 feet wide; northbound, southbound and left-turn lanes
- Bicycle lanes: 5 feet wide, with distinctive painted lane markings
- Parking lanes: 9 feet wide, with pervious pavement
- Street tree planting: in minimum 6-foot by 12-foot bio-retention cells along the sidewalk. Larger cells could hold multiple trees with shared root zones
- Stormwater treatment: bio-retention cells parallel to the curb

F. East 7th Street to East 9th Street

ARTS AND INDUSTRY IN THE GARDEN DISTRICT

The Garden District will also be a home for the “makers”— creative, industrious, self-starters who enjoy working independently. This part of the Garden District combines several seemingly incompatible uses— not unlike the current configuration of North East Street’s “urban edge” landscape. This proposal intensifies the diversity of land uses, yet makes sense of the interplay amongst the people who will take advantage of this rich diversity.

North East Street between 7th and 9th Streets has a certain edginess. Residential neighborhoods and convenience shopping about industrial uses, large and small. Dairy Maid Dairy and the Business Factory of Frederick (a co-work space) dominate the street’s west side with older buildings that clearly reflect Frederick’s former fabricating and warehousing operations. Smaller auto-focused services, the railroad tracks, and large expanses of asphalt parking add a no-nonsense, work-a-day grittiness to the landscape. New businesses, including Family Meal and Quartermaster Cigars, have reused mid-century buildings in ingenious ways. Like many edge landscapes, this juxtaposition of different uses provides a richness to the landscape that can be augmented with the addition of green infrastructure, public spaces, and new buildings that will provide a vibrant place for the industrious citizens of Frederick to live, work, and shop.

EXISTING CONDITIONS: PEDESTRIAN AND VEHICULAR

This district is only partially connected to the street grid of Frederick. From the west, East 9th Street connects to the Monocacy Village and Monocacy Meadows subdivisions but East 7th and East 8th Streets currently end at North East Street. South of East 9th Street, the subdivision streets either dead-end or end in a cul-de-sac. North of East 9th Street, neighborhood streets connect to Delaware Road, which is also a cul-de-sac at its eastern end.

North East Street currently provides effective service for vehicle traffic, yet the lack of curbs and sidewalks makes the street environment ill-defined, disorienting, and unsafe for pedestrians and bicyclists. At the East 8th Street intersection, the road bends slightly toward the west, then turns eastward before its intersection with East 9th Street. Railroad tracks, embedded in the asphalt paving, don’t follow the road alignment, lending visual confusion to the 8th Street intersection. Inattentive drivers have failed to follow the road’s slight curve and ended up on the tracks.

Throughout this area the street is made up of four 11-foot wide drive lanes (two northbound and two southbound) plus an undefined road shoulder of variable width along Dairy Maid and the auto shops across the street. Although all the cross streets have sidewalks on both sides, there are few sidewalks on North East Street. Sidewalks are only along a 200-foot segment between 7th and 8th Streets in front of the auto shop and house on the east side of North East Street.

There are no crosswalks across North East Street at East 7th and 8th Streets; those roads currently dead-end. At East 9th Street there is one crosswalk painted on the intersection’s north side, but it is worn from car traffic, ends abruptly at the railroad track without continuing across a service road, and crosses four lanes of traffic without a signal. Crossing the street here feels very unsafe.

There are currently sharrows painted on East 7th Street, but no other bicycle-specific facilities exist.

BUILDING STOCK

There are several noteworthy buildings in the Arts and Industry section of the Garden District.

- **The Business Factory of Frederick** occupies the entire 520 feet of street frontage on the west side of North East Street between 8th and 9th Streets. The one-story, dark-gray concrete block building has a 4-foot high loading dock across most of the building façade, which includes small windows, garage doors, and windowless entry doors. The building sits at an angle to the street, varying from 20 to 70 feet between the building and the North East Street right-of-way. This orientation is a reflection of the railroad spur that once deflected from the main Frederick and Pennsylvania Railway. The distance from the road at the southern end allowed trucks to back up to the building without disrupting street traffic flow.
- **Dairy Maid Dairy** occupies the former Frederick Iron Works building on the west side and makes up the entire road frontage between 7th and 8th streets. It is a one-story brick industrial building, parts of which date to the late 19th century. It is approximately 22 feet tall with regularly spaced windows facing North East Street and a large loading area behind the street façade. The Dairy's trucks occasionally disrupt to traffic on North East Street, since some trucks must stop and back into the loading area.
- **Quartermaster Cigars** and Family Meal are both located east of North East Street, close to it's intersection with East 9th Street. Both are surrounded by large parking lots. Quartermaster Cigars is a one- and two-story building complex, which used to serve as a multiple-bay auto repair garage. It is set approximately 260 feet back from the road.
- **Family Meal** is an affordable contemporary cuisine restaurant. It opened in 2012 in a repurposed Nissan auto dealership that was built in the 1960s. It has become a very popular destination. It is one story tall, set approximately 90 feet back from North East Street and 50 feet from East 9th Street.

Other existing buildings include three small one-story cinder block structures in the southeast quadrant of the block between 7th and 8th Streets: a body shop, a garage, and an IT services company. These are all set back about 50 feet from the road. Cars park in the front of these businesses and on the shoulder of North East Street. A two-story early 20th century house and barn sit back from the road 140 feet on the east side of North East Street, directly across from T-intersection of East 8th Street.

VEGETATION AND GREEN INFRASTRUCTURE

This stretch of North East Street currently contains no street trees with the exception of three large evergreens and three smaller deciduous trees in the front yard of the only residential structure. There are no street trees on any of the cross streets until the residential areas half a block east and west of the project area. There are then scattered trees in front yards of residences.

A vast majority of the land—about 87 percent—is covered in impervious materials, mostly asphalt parking lots or building roofs. Currently the only large non-paved areas are in the back yards of residences to the west of the Business Factory and Dairy Maid, in the front yard of the house on the east side, and in the strip of land parallel to North East Street that contains the railroad track, which is across from the Business Center. The two-block area gently slopes from higher ground in the west down toward the southeast and Carroll Creek.

OPPORTUNITIES AND CONSTRAINTS

The opportunity for future development is the large parking lot south of Family Meal and west of Quartermaster Cigars. North East Street is unconstrained by existing buildings on the east side, which allows flexibility in making changes to the street alignment and character.

On the west side, constraints include current industrial operations, particularly the number of milk trucks and semi trailers on the road. Dairy Maid’s loading facilities on North East Street create a significant gap in the street wall and poses safety concerns for bicyclist and pedestrians.

PROPOSED LANDSCAPE: PEDESTRIAN AND VEHICLE INFRASTRUCTURE

The street grid will be reconnected and the system, including mid-block service roads, will provide a finer-grained network that will foster walking and bicycling.

- East 8th Street could connect to Pontiac Avenue. Subdivision residents may prefer that this connection be limited to one-way traffic out of the residential community.
- East 7th Street will extend east and southward, parallel to East 6th and East 5th Streets, to East Church Street. Variances to current zoning regulations could allow Dairy Maid to park many of its trucks behind (west of) its building, rather than in the East 6th-to-7th Street block. Efficient truck parking could be negotiated near Food Pro, near the extended East 5th Street, East 6th Street, and Pine Avenue.

North East Street should be realigned to eliminate the westward curve, straightening out the street between East 8th and East 9th Streets. This realignment will create more pedestrian space between the curb and the Business Factory on the west side, with enough room for a new urban plaza in front of the Business Center. With realignment, the rails could be visibly incorporated into the street paving—and into the street character.

The number of travel lanes on East Street has been reduced from four to three, one in each direction with a center turn lane. Parallel parking is proposed for the east side of North East Street in both blocks and on the west side in front of the Business Factory only. There is not enough room available along the front of the Dairy Maid building.

All locations on North East Street will have an at least 11-foot wide sidewalk with permeable pavers and a 5-foot tree planting strip or a 5-foot by 5-foot tree planter. These will connect with sidewalks on intersecting streets. Crosswalks across all streets and service alleys will be provided.

While the proposed bike trail alignment works for the current site conditions, two-way bicycle traffic on a shared-use path adjacent to and at the same level as the sidewalk could be a recipe for pedestrian-bicycle crashes; the bicycle route should be a separate facility. The large number of semi-trailers and trucks could potentially conflict with buses, as service increases. In this section of North East Street, two 6-foot wide one-way protected bike lanes are recommended, one on each side of the street. Each lane is buffered from parked cars by a 3-foot raised curb. The bike lanes would run behind bus stops to keep bicyclists and buses separate.

Two bus stops will be located north of East 8th Street, and buses will pull into the parking lane to load and unload passengers.

PROPOSED PUBLIC PLAZA

Realigning North East Street creates enough space for a wedge-shaped urban plaza in front of the Business Factory. The plaza would be about 65 feet wide at its widest point in the southern portion of the block, narrowing at the northern end to 24 feet. The building’s existing loading dock would be retained as a promenade and widened to 10 feet in all locations. At the southern portion of the block, this promenade meets street grade through a series of steps with tree planters.



Examples of industrial loading docks transformed into civic “porches” in New York City’s Meatpacking District (left) and the Portland’s Pearl District (right).

In the summertime, trees shade the plaza, where people can sit on the steps and chat with friends or relax at circular tables, eating lunch or meeting friends for coffee. The smell of food carts lures workers from the business incubator and co-working space into the sunshine and they take a much-needed break from work. On the weekends, neighbors meet at the steps or quietly read at the café tables. Arts and crafts vendors set up for weekend sales.

Goal: Attract New Businesses and Residents, Create an Economically Vibrant Neighborhood

- Thriving existing businesses retained: Dairy Maid, Family Meal, Quartermaster Cigars.
- Business Incubator program expanded, small storefronts carved into existing building for new businesses and artists.
- Senior Center provides an activity center and senior housing.
- New buildings provide retail opportunities below and residences above.

Looking south on East Street at the plaza on the corner of 8th and East Street.



A bike path between the curb and the parked cars, an alternative that was later rejected because it created an inconsistent system, confusing to bicyclists, drivers, and pedestrians alike.

PROPOSED BUILDINGS, SOUTH TO NORTH

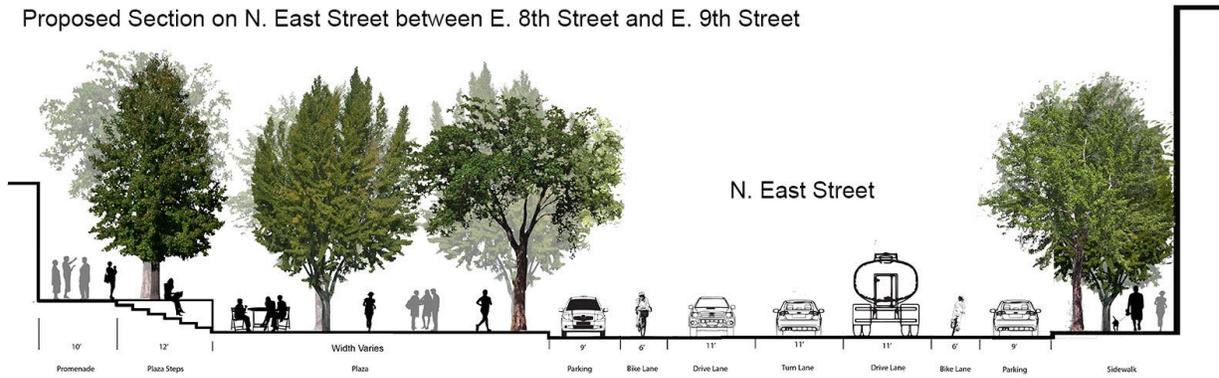
- Across from Dairy Maid’s loading docks, just north of the proposed Mound Park greenway and bike shop, a two-story **15,000 square foot building** could be used for retail and IT businesses (coffee shop and upper-level “maker” space).

- In the northern half of the same block, a one-story, **25,000-30,000 square foot building**, designed as a flexible, open interior space, could serve a variety of functions, both permanent and temporary. This building could serve as a year-round market (with vendor stalls) or a venue for community-focused events.
- To the east of this building, a two-story **senior living residence** would bridge the vibrant community life on North East Street with the single-family residences in Monacacy Village. Pontiac Avenue could be opened for pedestrian/bicycle access or for one-way traffic toward North East Street, creating a better connected street network.
- On the west side of North East Street, the approximately 158,000 square foot, one-story **Business Factory of Frederick** houses light manufacturing and art-based small businesses including breweries, pickle-makers, sculptors, and jewelers. The façade would be improved by creating storefronts along the current loading docks and cutting new door and window openings. The loading dock will connect to a new plaza on the street and act as an elevated promenade along the building. Within the business center there will be “maker” services such as a technical facilities in a do-it-yourself fabrication and design shop, where members will have access to 3-D printers, industrial sewing machines, laser cutters, a wood shop, and other fabrication tools.
- Two new four-story buildings across from the Business Factory will help to enclose the streetscape. Together, they contain **27,000 square feet of retail** space on the first floor, which could include a theater venue or small music hall on the first floor, a coffee shop, or other stores. There will be a total of **51,000 square feet of residential** space on the second, third, and fourth floors.
- Just south of Family Meal, a three-story **co-working space** with 8,500 square feet per floor could have a façade made from reused shipping containers to continue the site’s industrial look and feel. The building is set back to align with the Family Meal and filled with two rows of shade trees, allowing for a comfortable sitting area out front where people can work outside, take lunch breaks, or take business calls in nice weather. The building is subdivided into open work areas, conference and meeting rooms, presentation rooms, and spaces that can be rented out by small businesses.

PROPOSED GREEN INFRASTRUCTURE

- The number of **trees** in this area has increased to approximately 200, approximately 125 of which will directly line the street. Street trees provide environmental, economic, and social benefits including cooling air, defining the spatial envelope of the street, slowing traffic, reducing air pollution, absorbing stormwater, encouraging greater consumer spending, increasing property values, reducing stress, and many more.
- The Business Factory’s flat 158,000 square foot roof could be turned into a **green roof** depending on the existing building structure. Rooftop greenhouses or a start-up hydroponics business could become part of the Factory’s initiatives.

Proposed Section on N. East Street between E. 8th Street and E. 9th Street



RECOMMENDATIONS

- Street width (curb-to-curb): 61 feet
- Three driving lanes: 11 feet wide; northbound, southbound and left-turn lanes
- Bicycle lanes: 5 feet wide, with distinctive painted lane markings
- Parking lanes: 9 feet wide, with pervious pavement
- Street tree planting: in minimum 6-foot by 12-foot bio-retention cells along the sidewalk. Larger cells could hold multiple trees with shared root zones
- Stormwater treatment: bio-retention cells parallel to the curb
- Plaza dimensions: approximately 50 feet at the south end and 15 feet at the north end.

G. East 9th Street to Delaware Road: Gateway to the Garden District

The proposed Garden District, so-called because of the significant increase in trees, parks, and gardens, serves as a distinctive neighborhood bridging the urban–suburban transect to the north of Frederick’s historic downtown. This northernmost neighborhood of the Garden District acts as a critical transition to and from areas that are developing in more traditionally suburban ways. Bounded by East 9th Street to the south and Delaware Road to the north, the proposed design interventions for this neighborhood offer greatly increased tree canopy, improved stormwater management, and reduced impervious surface. Separated vehicle, bicycle, and pedestrian zones within the North East Street right-of-way establish a consistent street character from Delaware Road to East 5th Street. Greenway connections link the Garden District to a broader green infrastructure network throughout the adjacent neighborhoods.

EXISTING CONDITIONS

The neighborhood along North East Street, bounded by 9th Street and Delaware Road, is not a part of the City’s historic district, and is characterized by suburban single-story strip retail development. The buildings are set back from the street, with parking in front. An impression of an exceptionally wide and forbidding right-of-way is exacerbated by a unused parallel frontage road along the east side of North East Street. The grassed median between North East Street and the frontage road contains unused train tracks.

Along the east side of this exceptionally long block is the Monocacy Village Shopping Center. This low-rise strip shopping center is fronted by parking, yet offers access from 9th Street and Delaware Road. The parking area is 100 percent impervious asphalt with no landscaping and traditional storm drains. The western side of North East Street is broken into multiple shopping centers. From south to north, these include a tire business; a strip center with a Salvation Army, a vacant former hobby store, and a few small businesses; and a bank. All of these businesses are set back from North East Street, and offer no canopy cover or streetscaping.

Despite these challenges, this neighborhood offers many opportunities, chief among them, its excellent location. This neighborhood is close to both the historic downtown amenities and the conveniences of more suburban shopping, such as the Wegmans, approximately one mile to the north. New residential construction is underway to the immediate north of the neighborhood, bringing in new residents. Thus, the existing retail can serve existing and new residential uses, and is a good candidate for updating. The YMCA of Frederick County and Monocacy Village Park offer recreational opportunities immediately adjacent to the neighborhood.

THE DESIGN

The design intention is to create a “green gateway” neighborhood that integrates with the larger green infrastructure system of the Garden District as a whole, while addressing the particularities of this segment of North East Street.

Design goals for the neighborhood are to:

- improve the streetscape experience for all users (vehicle, bicycle, pedestrian)
- reduce impervious cover and use low-impact development techniques to address stormwater
- increase tree canopy to combat urban heat island effect as well as soften the urban fabric
- create new residential and retail opportunities.

North East Street will be only slightly realigned to the east at the southern end of the block. The large available right-of-way is an opportunity to create a complete street with separate, protected zones for vehicle traffic, bicycles, and pedestrians. There is a single vehicle travel lane along North East Street, as

well as separate protected bike lanes in each direction, with a generous median planted with native forbs and trees. The median gives way to turn lanes to offer easy flow of vehicle traffic into shopping areas and serves as a protected pedestrian zone for mid-block crossings. One significant change to the streetscape along the block is the creation of two entrances to the Monocacy Village Shopping Center, where there are currently none. They offer improved access to the shopping center and break up the current monotony of the streetscape.



The redesigned block of North East Street culminates at a new traffic circle at Delaware Road. This traffic circle is the gateway that gives the neighborhood its name, and serves as the transition point between the Garden District and the more traditionally suburban development to the north.

The circle is an opportunity for a landmark public artwork announcing the Garden District. The circle also marks the point where the separated bike lanes and pedestrian paths join to become the shared use trails-with-rails path. The traffic circle, while accommodating large delivery trucks, slows the speed of traffic and helps pedestrians and bicyclists to

feel safe and comfortable in this area, encouraging more walking and bicycling. The traffic circle also acts as a greenway link between Monocacy Village Park and the YMCA. Removing a small freestanding retail store (currently Benjamin Moore), allows the creation of a park that would link directly to the traffic circle and extend the shared use path to the YMCA.

Traffic circle gateway at Delaware Road and North East Street



Along the east side of North East Street, the 1963 Monocacy Village Shopping Center is a well-built structure with flexible interior space that can accommodate an ever-changing retail market. The shopping center represents the mid-20th century period in Frederick’s evolution and this history is worth preserving in its architecture. Reusing the existing structure is a sustainable option that offers the possibility for renovation and expansion to a second story that could increase office space in the neighborhood. The second floor will give the building additional visual prominence when seen from North East Street. New signage at the two proposed entrances will also make the shopping center more visually accessible and better connected to the street. These new entrances will include pedestrian street crossings and will improve pedestrian and bicycle access from the west.

Rather than completely redeveloping the site, the asphalt expanse fronting the building could be transformed into a civic space. A “parking grove” would use permeable surfaces, bio-retention stormwater treatment, and an extensive tree canopy for shade and aesthetic improvement. Pedestrian comfort is also a key feature of the redesign, with walkways for pedestrian safety in the parking area and a covered promenade along the front of the shopping center for shelter from adverse weather. The center’s expansive roof area offers opportunities to explore green technologies such as solar and a green roof.



“Reforestation” with a “parking grove” at the Monocacy Village Shopping Center parking lot can create a civic space.

In addition to the revitalized shopping center, the parking lot’s southern portion is designed to be a flexible, programmable zone. Long-term but temporary structures such as cargo containers, kiosks, vendor stalls, and stage pavilions would line up along North East Street and expand into the parking lot for bigger events. “Boot sales,” swap meets, and antique fairs could take place here. At the corner of North East Street and East 9th Street, across from Family Meal, a permanent structure could anchor the corner and serve as a café or food stand, with public restrooms that would accommodate event participants, as well as bicyclists, walkers, and lunchtime brown baggers.

On the northwest corner of North East Street and East 9th Street, a mixed-use development would bring additional retail and restaurant space, co-working offices, and apartments on the 3rd and 4th floors. The buildings would be designed to complement nearby buildings. This space is envisioned as geared toward businesses that support the tenants in the business incubator and the nearby artists and craftsman spaces. For example, art supplies or a FedEx office. A new vegetated zone to the west of these businesses buffers the immediately adjacent homes on 9th Street.

At mid-block on the west side of North East Street is a complete redevelopment of the existing single-story strip retail. This becomes the site of a four-story mixed-use building with street level retail and residential above. The wide sidewalk allows for café seating and outdoor displays, creating an active streetscape. A direct pedestrian crossing to the Monocacy Village Shopping Center increases access between the two sites. The 1- and 2-bedroom residential units on the upper floor offer urban-style living with direct access to the amenities of the YMCA, bicycle and pedestrian infrastructure, and numerous retail, office, and restaurant offerings nearby. Parking is both behind and beneath the building.

The proposed design interventions offer the following improvements:

- increased residential, retail, and office space
- improved pedestrian and cycling connectivity within the neighborhood and to the larger networks in the Garden District and beyond
- improved on-site stormwater management using Best Management Practices (BMPs)
- increased aquifer recharge through bio-retention and pervious surfaces
- removing 180,000 square feet of impervious surface
- increased pervious pavement areas by 90,000 square feet
- increased pervious vegetated areas by 90,000 square feet

RECOMMENDATIONS

- Street width (curb-to-curb): 61 feet
- Three driving lanes: 11 feet wide; northbound, southbound and left-turn lanes
- Bicycle lanes: 5 feetwide, with distinctive painted lane markings
- Parking lanes: 9 feet wide, with pervious pavement
- Street tree planting: in minimum 6-foot by 12-foot bio-retention cells along the sidewalk. Larger cells could hold multiple trees with shared root zones.
- Stormwater treatment: bio-retention cells parallel to the curb
- Plaza dimensions: approximately 50' at the south end and 15' at the north end.
- Traffic circle at Delaware Road: 20-foot minimum inner circle radius; 35-foot minimum outside radius

RESOURCES

Carroll Creek Wildlife Recreation Area Report, 2014, Landscape Architecture, University of Maryland.

City of Frederick 2001 *East Street Corridor Plan*

City of Frederick 2010 Comprehensive Plan, <https://www.cityoffrederick.com/index.aspx?NID=231>

City of Frederick *Demographics-at-a-glance*, <http://www.cityoffrederick.com/index.aspx?nid=533>

City of Frederick: East Street Rails with Trails, Frederick, MD. Prepared by Toole Design Group for The City of Frederick, Maryland and the Metropolitan Washington Council of Governments. July 2, 2013; revised August 6, 2013.

City of Frederick Zoning, <http://www.cityoffrederick.com/>.

East Frederick Rising; Mid-Maryland's Economic Engine, A Vision for the Revitalization of the East Side. Prepared for the City of Frederick by East Frederick Rising. November 4, 2010.

Frederick County, Maryland, Comprehensive Plan, <https://frederickcountymd.gov/170/2010-County-Comprehensive-Plan>.

Raycheva, Margaret. 2015. *Tourism Takes Off*, Frederick Magazine, January, 2015

Reed, Paula S. & Associates. 2003. "Mid Maryland Agricultural Context Report," Draft, (Frederick, MD: Catocin Center for Regional Studies, 2003).

Sanborn Fire Insurance Co. maps, Frederick City, microfilm collection, Maryland Room, C. Burr Artz Library, Frederick, MD.

Perry, Kevin Robert, and Robert Dusenbury. 2009. *San Mateo County Sustainable Green Streets and Parking Lots Design Guidebook*, First edition, January 2009. San Mateo Countywide Water Pollution Prevention Program.

Urban Land Institute, Washington, DC. 2013. *Technical Panel Report: Revitalization and Development in East Frederick, Maryland*, December 11-12, 2013. Sponsored by East Frederick Rising and the City of Frederick.

Wallace, Kim E., Teresa S. Moyer, Paula S. Reed, and Edith B. Wallace. 2011. *Catocin Center for Regional Studies, Frederick, Maryland. Routes of Change: A History of Transportation in Mid-Maryland*

APPENDIX A: LAND USE CALCULATION

East 6th Street to Delaware Road



Land Use calculations	Retail	Residential	Office
Between 8th Street and Delaware Rd. (Kathleen)			
East Street west side/north			
Ground floor retail	25,000SF		
Apartments (floors 2-4)		100	
East Street west side/south			
Ground floor retail	15,000SF		
Apartments (floors 2-4)		80	
Between 7th Street and 9th Street (Renee)			
Regional Food Market	25,000SF		
Apartments (3 stories)		45 units	
Senior Living (2 and 3 stories)		60 units	
Office (co-work space, 2 stories)			9600 SF
Between 6th Street and 7th Street (George)			
East Street west side			
Ground floor retail	9,000SF		
Apartments (floors 2-4)		40 units	
East Street east side			
Ground floor office/retail	15,000SF		8,000 SF
Apartments (floors 2-4)		58 units	
Courtyard apartments (3 floors)		115 units	
Townhouses w/garages)		92 units	
Single-family detached			
SUBTOTAL	89000SF	590 units	17600 SF

Carroll Creek Park to East 6th Street



Land Use calculations	Retail	Residential	Office
Between 5th Street and 6th Street			
Ground floor office/retail	15,000 SF		15,000
Apartments (floors 2-4)		65 units	
Courtyard apartments (3 floors)		84 units	
Between 4th Street and 5th Street (Katelin)			
Artist Live-Work lofts (2 stories)		40 units	
Artist co-housing (3 stories)		40 units	
Flexible modular work space			24,000SF
Between Patrick Street and Church Street			
Ground floor office/retail	12,000 SF		8,400SF
Apartments (floors 2-5)		80 units	
Church Street and 2nd Street Triangle			
Ground floor office/retail	10,000 SF		6,000SF
Apartments (floors 2-4)		45 units	
Pine Street Parkway			
Townhouses(3 floors w/garages)		110 units	
East Street at Carroll Creek Park			
Ground floor retail	24,000 SF		
Apartments (floors 2-5)		90 units	
SUBTOTAL	61000 SF	554 units	53400SF
PROJECT TOTAL	150000 SF	1144 units	71000SF

APPENDIX B: PLANT LIST

STREET TREES						
	Scientific Name	Common Name	Height	Spread	Salt tolerant?	Appropriate for Bioretention?
Trees over 50' ht.	<i>Acer rubrum</i>	Red Maple	40-60'	40-60'	N	Y
	<i>Celtis occidentalis</i>	Hackberry	40-60'	40-60'	Y	Y
	<i>Liquidambar styraciflua</i>	American Sweetgum	60-75'	60-75'	?	Y
	<i>Quercus alba</i>	White Oak	50-80'	50-80'	Y	Y
	<i>Quercus bicolor</i>	Swamp White Oak	50-60'	50-60'	N	Y
	<i>Quercus coccinea</i>	Scarlet Oak	60-80'	40-50'	N	N
	<i>Quercus palustris</i>	Pin Oak	65-70'	25-40'	N	Y
	<i>Quercus phellos</i>	Willow Oak	40-60'	30-40'	Y	Y
	<i>Tilia americana</i>	American Linden	60-80'	30-55'	Y	N
Trees 35-50' ht.	<i>Nyssa sylvatica</i>	Black Tupelo	30-50'	20-30'	Y	Y
	<i>Quercus muehlenbergii</i>	Chinkapin Oak	40-50'	50-60'	N	N
	<i>Robinia pseudoacacia</i>	Black Locust	30-50'	10-15'	Y	Y
Trees under 35' ht.	<i>Carpinus carolinia</i>	American Hornbeam	20-30'	20-30'	N	N
	<i>Cercis canadensis</i>	Eastern Redbud	25-30'	25-35'	N	N

PLANTS FOR BIO-RETENTION						
	Scientific Name	Common Name	Height	Habit	Salt tolerance?	
Perennials	<i>Agrostis perennans</i>	Autumn Bentgrass	1-3'	bunchgrass	Y/medium	Y
	<i>Andropogon gerardii</i>	Big Bluestem	2-6.5'	warm season bunchgrass	Y/medium	Y
	<i>Andropogon virginicus</i>	Broomsedge	1-3'	warm season bunchgrass	Y/low	Y
	<i>Dichanthelium clandestinum</i>	Deer-tongue	2-5'	warm season bunchgrass	Y/low	Y
	<i>Elymus riparius</i>	Riverbank Wild-rye	2-4'	warm season grass	Y/low	Y
	<i>Eupatorium fistulosum</i>	Joe-Pye Weed	1.5-10'	spreading, flowering	Y/low	Y
	<i>Panicum virgatum</i>	Switchgrass	3-6'	clumping, reduces erosion	Y/low	Y
	<i>Phlox carolina</i>	Thick-leaved Plox	1-2.5'	clumping	N	Y
	<i>Pteridium sp.</i>	Bracken Fern	1.5-6'	spreading	N	Y
	<i>Scutellaria integrifolia</i>	Rough Skullcap	1-2.5'	forms small patches	N	Y
	<i>Silphium perfoliatum</i>	Cup Plant	3-8'	clumping	Y/low	Y
Shrubs						Y
	<i>Hypericum densiflorum</i>	Dense St. John's Wort	1.5-6'	dense, spreading shrub	Y/low	Y
	<i>Kalmia latifolia</i>	Mountain Laurel	2-3'	airy evergreen shrub	N	Y
	<i>Photinia melanocarpa</i>	Black Chokeberry	3-6'		N	Y
	<i>Photinia pyrifolia</i>	Red Chokeberry	1.5-13'		Y/low	Y
	<i>Rhododendron periclymoides</i>	Pink Azalea	3-10'		N	Y
	<i>Salix humilis</i>	Prarie Willow	6-12'	spreading shrub	Y/low	Y

<i>Sambucus nigra var. canadensis</i>	American Elder	6-12'		N	Y
<i>Vaccinium corymbosum</i>	Highbush Blueberry	6-12'		Y/medium	Y
<i>Viburnum dentatum</i>	Southern Arrowwood	10-15'	straight stems	N	Y
<i>Viburnum prunifolium</i>	Black Haw	12-24'		N	Y

PLANTS FOR PARKS AND GREENWAYS (Native to Piedmont region; no irrigation required once established)

	Scientific Name	Common Name	Height	Spread	Salt tolerant?	Appropriate for Bioretention?
Trees over 50' ht.	<i>Carya ovata</i>	Shagbark Hickory	60-80'	35-50'	Y	Y
	<i>Celtis occidentalis</i>	Hackberry	40-60'	40-60'	Y	Y
	<i>Diospyros virginiana</i>	Common Persimmon	35-60'	25-35'		Y
	<i>Fagus grandifolia</i>	American Beech	50-70'	50-70'	N	N
	<i>Liquidambar styraciflua</i>	American Sweetgum	60-75'	60-75'		Y
	<i>Pinus strobus</i>	Eastern White Pine	50-80'	20-40'	N	N
	<i>Quercus alba</i>	White Oak	50-80'	50-80'	Y	Y
	<i>Quercus coccinea</i>	Scarlet Oak	60-80'	40-50'	N	N
	<i>Quercus palustris</i>	Pin Oak	65-70'	25-40'	N	Y
	<i>Quercus phellos</i>	Willow Oak	40-60'	30-40'	Y	Y
	<i>Tilia americana</i>	American Linden	60-80'	30-55'	Y	N
Trees 35'-50' ht.						Y
	<i>Ilex opaca</i>	American Holly	40-50'	20-40'		Y
	<i>Juniperus virginiana</i>	Eastern Red Cedar	40-50'	10-20'	Y	N
	<i>Nyssa sylvatica</i>	Black Tupelo	30-50'	20-30'	Y	
	<i>Quercus muehlenbergii</i>	Chinkapin Oak	40-50'	50-60'	N	N
Trees under 35' ht.						N
	<i>Carpinus carolinia</i>	American Hornbeam	20-30'	20-30'		N
	<i>Cercis canadensis</i>	Eastern Redbud	25-30'	25-35'	N	N
	<i>Chionanthus virginicus</i>	White Fringetree	25-30'	25-30'	Y	N
	<i>Cornus florida</i>	Flowering Dogwood	20-30'	20-30'	Y	N
	<i>Crataegus crus-galli</i>	Cockspur Hawthorne	20-35'	20-35'	N	
	<i>Viburnum prunifolium</i>	Blackhaw Viburnum	10-15'	10-15'	N	N
Shrubs for open areas (sun)	<i>Ceanothus americanus</i>	New Jersey Tea	3'			N
	<i>Comptonia peregrina</i>	Sweetfern	3'			N
	<i>Corylus americana</i>	American Hazelnut	10-15'			Y
	<i>Hypericum densiflorum</i>	Dense St. John's Wort	1.5-6'			Y
	<i>Photinia melanocarpa</i>	Black Chokeberry	3-6'		N	Y
	<i>Photinia pyrifolia</i>	Red Chokeberry	1.5-13'		Y	N
	<i>Rhus aromatica</i>	Fragrant Sumac	6'			N
	<i>Rhus copallina</i>	Winged Sumac	20-35'			N
	<i>Rhus glabra</i>	Smooth Sumac	2-20'			N

<i>Rhus hirta</i>	Staghorn Sumac	35-50'			N
<i>Rosa carolina</i>	Pasture Rose	.5-3'			N
<i>Rubus allegheniensis</i>	Allegheny blackberry	3-9'			Y
<i>Salix humilis</i>	Prarie Willow	6-12'			Y
<i>Sambucus nigra ssp. canadensis</i>	American Elder	6-12'		N	N
<i>Vaccinium angustifolium</i>	Lowbush Blueberry	1-2'			N
<i>Vaccinium stamineum</i>	Deerberry	6-12'			

Understory shrubs (shade)

<i>Cornus racemosa</i>	Red-panicled Dogwood	6-12'			N
<i>Gaylussacia baccata</i>	Black Huckleberry	1.5-3'			N
<i>Hamamelis virginiana</i>	Common Witch Hazel	20-30'			Y
<i>Kalmia latifolia</i>	Mountain Laurel	12-20'			Y
<i>Rhododendron periclymenoides</i>	Pink Azalea	3-10'		N	Y
<i>Ribes rotundifolium</i>	Eastern Gooseberry	3-6'			N
<i>Vaccinium corymbosum</i>	Highbush Blueberry	6-12'		Y	Y
<i>Vaccinium pallidum</i>	Early Lowbush Blueberry	1.5-2'			N
<i>Viburnum acerifolium</i>	Maple-leaved Arrowwood	3-6'			N
<i>Viburnum dentatum</i>	Southern Arrowwood	10-15'			Y
<i>Viburnum nudum var. cassinoides</i>	Witherod	6-12'			N
<i>Viburnum prunifolium</i>	Black Haw	12-24'		N	Y