THE SUSTAINABLE & RESILIENT **PROPOSAL**

41°37'31.12" N -87°43'3.18" W

THE VILLAGE OF MIDLOTHIAN ILLINOIS

PROPOSED BY

COLUMBIA UNIVERSITY
School of Professional Studies

SUMAPS5200 SUMMER 2020
Faculty Advisor: Eileen McGinnis

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In partial fulfillment of the requirements for Columbia University's Master of Science degree in Sustainability Management, students must successfully complete SUMA5200 - Integrative Capstone Workshop, in which they act as consultants for an organization to analyze a sustainability problem and recommend a solution. This semester, we had the privilege of working with the Village of Midlothian, Illinois to create a sustainable and resilient downtown plan.

AUTHORS

PROJECT MANAGER: NINA LEONARD
DEPUTY MANAGER: DANIELLE GORSHEIN
EDITOR: BRYNN ESTERLY

PLACEMAKING AND MOBILITY:
SAM SABIN, CAROLINE BRUDLER
NINA LEONARD, BRYNN ESTERLY

CLIMATE ADAPTATION AND ECONOMIC GROWTH:
HANNAH RICHEY, ANDRE SHEPLEY
SANAZ RACZYNSKI, DANIELLE GORSHEIN

ACKNOWLEDGMENTS

We would like to thank Karen Kreis, Board Trustee and our client contact in the Village of Midlothian, for providing the team with this opportunity. We admire Karen's dedication to the Village and its residents and applaud her tireless efforts to transform Midlothian into a resilient, sustainable, vibrant town for residents and visitors alike.

With special thanks to our Advisor, Professor Eileen McGinnis, and our Teaching Assistant, Julia Bontempo, for their help, guidance, and support.

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EXECUTIVE SUMMARY

In May 2020, the Village of Midlothian, Illinois, engaged Columbia University as a consultant to reimagine and develop a plan for the Village's downtown area. The consulting work was undertaken by Columbia University's graduate students in the Sustainability Management program, whose collective expertise span sustainable development, urban planning and finance.

The Village of Midlothian was incorporated in 1927, around the time of the Model T car boom. Suburban housing stock increased in Midlothian throughout the 1930s and 40s as people continued to settle there, and neighborhoods were built around car access. Given the development of Midlothian, it's not surprising that the town is auto-oriented and that the majority of households own 2 or more vehicles, which is higher than the national average ("Midlothian, IL," N.D.).

Much dedication and effort has been poured into developing solutions for Midlothian's existing challenges with flooding. The client identified in the first meeting that water management was her fourth priority, behind zoning, building refurbishment, and energy management. We dedicated ourselves to exploring the intersection of sustainability with these three main priorities as requested by the client.

The goal of the research project is to identify efficient and cost-effective ways to build a sustainable, resilient, vibrant, and walkable downtown area in Midlothian. We found Midlothian's car-centered infrastructure to be the greatest challenge to flooding, economic development, and sustainability. As a result of this conclusion, we explored known strategies to address this issue by researching:

- Placemaking
- Mobility
- Economic Growth
- Climate Adaptation

This report addresses each key area and identifies feasible and effective solutions that can be implemented for each over the short- and long-term. Additionally, the report outlines expected costs for implementation and identifies potential partners and funding sources to assist the Village of Midlothian with development and implementation.

By implementing some or all of the solutions, the team believes that Midlothian can take the important steps necessary to remain resilient in the face of climate change, while also reestablishing the vibrancy and appeal of its downtown area – making Midlothian an attractive area to live, visit and explore throughout the year, for years to come.

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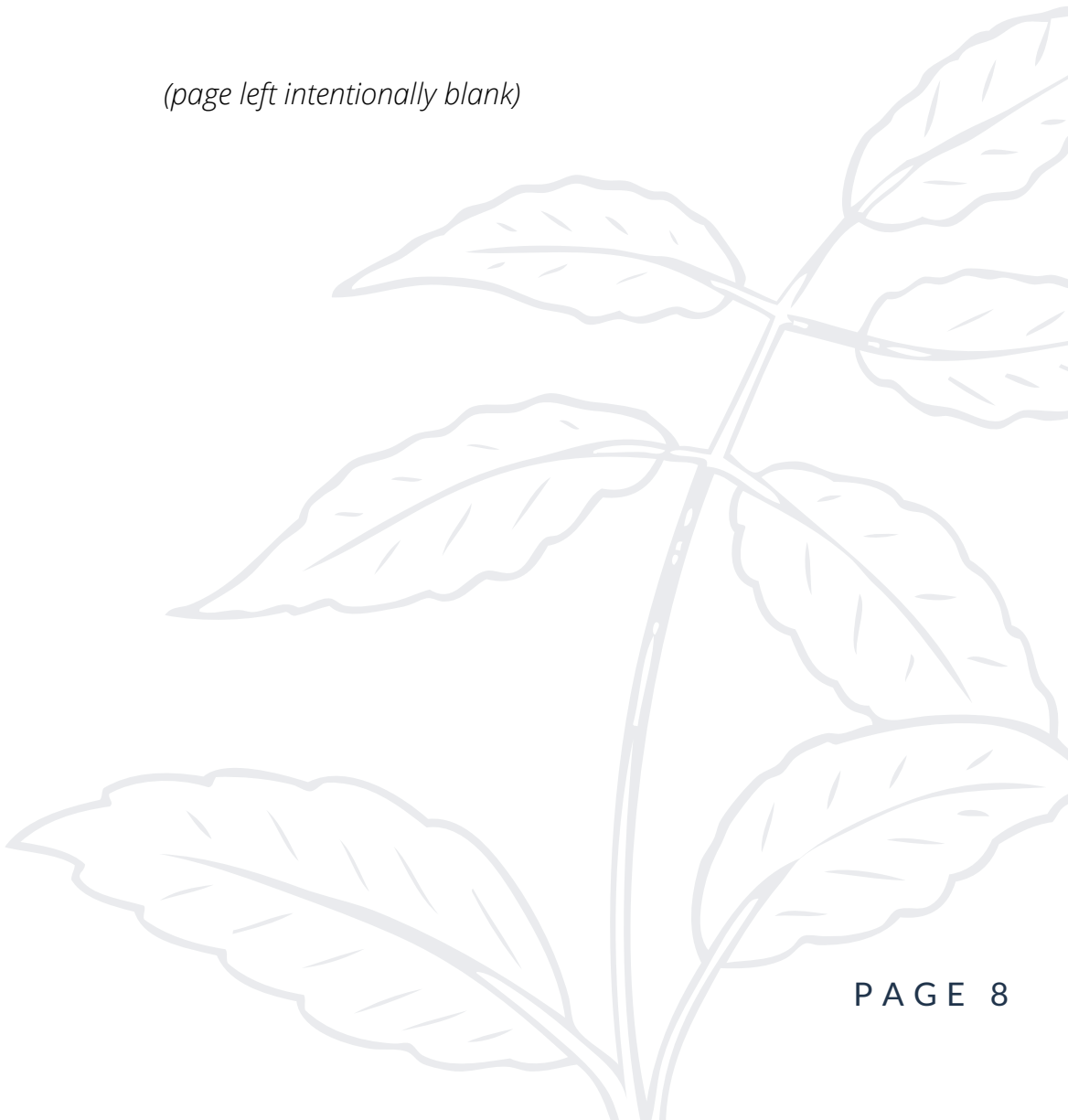

PROJECT FRAMEWORK AND METHODOLOGY

The consulting project for the Village of Midlothian began in May 2020 and concluded in August 2020. During this time, the team conducted literature reviews, interviewed national experts and subject-matter specialists, and visited Midlothian to inform their research and proposed solutions (see details below). The team also communicated regularly with Karen Kreis, their point of contact for the project, and a member of the Board of Trustees for the Village of Midlothian. The team provided Karen with a midterm checkpoint presentation in July to ensure alignment and feasibility of implementation for the initial proposed solutions. Based on feedback from this presentation, the team honed the proposed solutions and finalized the proposal, presenting to the Board of Trustees in August. Below is additional detail regarding the team's research approach:

1. **Literature Reviews**

The team conducted thorough research to understand the unique needs and challenges facing the Village of Midlothian that precipitated the research project. The team also leveraged case studies, scholarly articles, and relevant reports to determine international and national best practices for designing and building sustainable cities and identify suitable solutions for the Village.

2. **Expert Interviews**

The team conducted 21 detailed telephone interviews with a combination of national experts and subject-matter specialists, as well as Midlothian residents. The interviews supplemented the team's research and added important insight on a variety of research topics for the project. Topics discussed include mobility and transportation, water management, urban planning and zoning, and business (re)development. A full list of the interviewees is provided in the Appendix to this report.

3. **Village Visit**

One team member visited Midlothian and documented their findings in a detailed report. Unfortunately, due to COVID-19, it was not possible for additional members to travel to Midlothian for the preparation of this report (see "Note on COVID-19" below).

Note on COVID-19:

This project was undertaken following the global outbreak of COVID-19. Additionally, all communication with stakeholders, including telephone interviews, presentations, and briefs, were held virtually.

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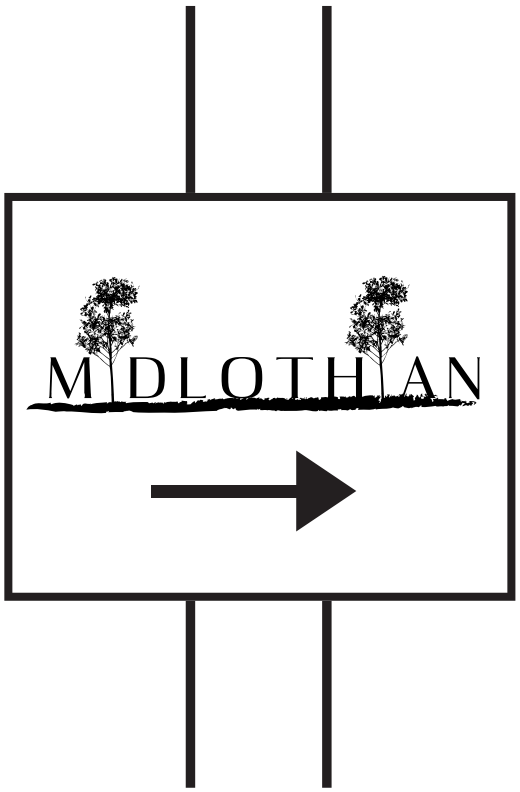
OPTION #1: WAYFINDING

Objective & Description:
A wayfinding system is a cost-effective method to make a town or city easy to navigate and visitor-friendly. The most common form of wayfinding is the use of signs, which are placed in strategic locations to assist pedestrians in identifying and reaching key landmarks around the city. Signage builds confidence and trust for walkers, thereby increasing foot traffic and reducing reliance on cars to get around. Wayfinding can also stimulate economic activity by encouraging longer and more frequent walks through the city.



Impact on Midlothian:
Wayfinding is recommended for Midlothian. First, it improves street safety by guiding pedestrians through recommended routes; second, it reveals new or unknown aspects of the city to visitors or commuters traveling through the Village; and third, it encourages walking and therefore contributes to economic growth as locals and visitors spend more time on-foot in the city. Creating distinct signage will also work to enhance town pride and identity.

Next Steps/Implementation:

1. Determine distinct and identifiable Midlothian logo/graphic
2. Identify key landmarks and define walkable routes to reach them
3. Engage sign manufacturer and order signs
4. Assemble and place signs in predetermined locations

Case Study Excerpt

58% agreed that the signs encouraged them to explore the area on foot

Proportion of users feeling lost was reduced by **17%**

applied_ wayfinding

Possible Funding Sources:

TIF Tax Increment Financing

PRESERVE AMERICA *Explore and Enjoy Our Heritage*

OPTION #2: ART MURAL

Objective & Description:
Community rejuvenation projects, such as art murals, have the ability to change the dynamics of a neighborhood with little up-front cost or planning. By adding color, vibrancy, and character to any permanent or semi-permanent space, art murals are effective in creating a sense of place and capturing the unique identity of a neighborhood. Creating a shared identity and sense of place can also spark resident morale and encourage more economic development, as business owners are enticed to invest in and develop nearby spaces (University of Central Arkansas, 2016).

In fact, a recent case study found that strategically placed murals and other art exhibits can lead to a 20% increase in revenue for local businesses and a 25% increase in foot traffic (Villalobos, 2018). Midlothian should consider beginning with one mural and then expanding the project over time based on community feedback and available resources. There is also the potential to collaborate with local schools and support local artists which is also a cultural boost.

Historically, murals have been known to be designed during times of turmoil in a city, and have proven to be successful at renewing community hope, increasing social cohesion and creating a designated space in which more business and social gatherings can take place in the future (Sheets, 2020).

Source: Google Maps

Source: Mural Arts Philadelphia

Impact on Midlothian:
With prevalent alleyways and open wall space, Midlothian has various locations that are ideal for artistic revitalization. For example, Midlothian could consider commissioning an art mural for the expansive wall space at 3832 147th Street. Another suggestion is one of the walls of the shops at Tiffany Plaza.

OPTION #2: ART MURAL (CONT'D)

Next Steps / Implementation:

1. Determine location for mural: Consider launching an online lottery in which local businesses can apply to have the mural implemented on the side of their building or nearby public space. This could even include potential for corporate sponsorship, whereby one or more local businesses in Midlothian partners with the mural initiative and subsidizes some of its cost, for the benefit of the community.
2. Garner community interest: Consider utilizing a survey or other online platform to elicit suggestions from the community to determine the mural's imagery. This could be made into a friendly community contest, with the winner receiving a prize or formal recognition.
3. Identify artist to execute the mural
4. Commission mural
5. Host a reveal party: Invite the community to join the unveiling of the new mural, with a prize or formal recognition going to the community member whose suggested vision was selected for the mural.

Possible Funding Sources:

BEAUTIFY EARTH
painting the world in color

ILLINOIS ARTS COUNCIL AGENCY

Source: Google Maps

Source: Mural Arts Philadelphia

Case Study Excerpt

"Arts strengthen the economy—the U.S. Bureau of Economic Analysis reports that the arts and culture sector represents 3.25 percent of GDP, and generates $135 billion in economic activity annually.

Arts are good for local merchants—attendees at nonprofit arts events spend money on meals, parking, and babysitters, thus stimulating the economy."

UNIVERSITY OF CENTRAL ARKANSAS

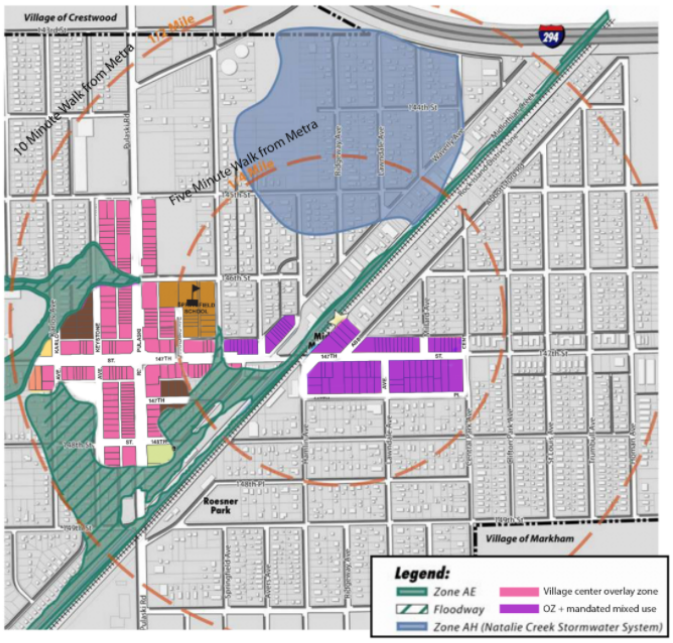
OPTION #3: B-2 ZONING

Description & Objectives:

Zoning is a critical component to any city's future growth and development, as it directly impacts the city's ability to attract residents and promote new business. Currently, Midlothian's B-2 zoning restricts the Village's ability to create a coherent sense of place for residents or foster business development in the center of town. This is because existing B-2 ordinances require special use approval for live entertainment, taverns, and bars, as well as multi-family or townhouse dwellings, making it challenging to implement any of these changes in the Village.

These special use ordinances contradict the goals of Midlothian's 2005 Village Center Enhancement plan, which include establishing a "pedestrian-oriented, mixed-use district" and improving "the business mix and tax base of the Village" (URS Corporation, 2005). Based on floodplain locations and previous recommendations made by the University of Illinois at Chicago, we recommend establishing a Village Center Overlay Zone ("Overlay Zone") for certain areas within a ten-minute walk of the Metra station that are currently zoned as B-2 (see image).

An overlay zone is a new zoning district which is applied overtop of an existing zoning district, establishing additional criteria to that of the underlying district (American Planning Association, 2020). By creating an Overlay Zone for areas within a ten-minute walk of the Metra station, Midlothian could devise a simple and straightforward method to enhance current zoning ordinances for the purpose of increasing pedestrian traffic and encouraging new businesses to enter the area. A radius of ten minutes walking equates to about half a mile, which in conversation with zoning experts was determined to be an optimal radius for pedestrian traffic from the Metra station (Madden, 2020). The Overlay Zone should take the concept of Form Based Code into consideration, focusing on physical form as an organizing principle.



Map of Proposed Village Center Overlay Zone

Sources: 2014 UIC Study, 2019 Midlothian Zoning Map

Impact on Midlothian:

The Overlay Zone would create a cohesive sense of place for Midlothian and foster economic development. By permitting live entertainment, taverns, and bars within the Overlay Zone, the Village creates the opportunity for new businesses such as breweries, and entertaining events for residents such as live bands. Mandatory mixed-use development would introduce residential and office space to the area, creating an additional customer base for businesses within the Overlay Zone and beyond. The Overlay Zone would also allow village leadership to work around existing ordinances without the capital and work-intensive process of a complete zoning overhaul.

OPTION #3: B-2 ZONING (CONT'D)

Proposed Overlay Zone Plan Objectives:

Short Term (Immediate)

- Permit encroachments into public rights-of-way (ie: awnings, outdoor dining, business signage). If sidewalks are not ADA compliant, the Village should apply for ADA grants to achieve long term sidewalk improvements. Accessibility is important for and beneficial to people of all abilities (American Planning Association, 2018).
- Restrict blank walls. Large expanses of walls, greater than 30 feet and without doors and windows, detract from the vibrant aesthetic of a downtown area (Forrest et al, 2018).
- Permit mixed-use throughout the entire B-2 overlay zone, making it mandatory for new development within a five-minute walking radius of the Metra station.
- Permit live entertainment, taverns, and bars

Medium Term (1-2 years)

- Permit multi-family dwellings
- Develop public realm standards, building off of the University of Illinois at Chicago 2014 Village Center Plan
- Require minimum frontage occupation. Large gaps between buildings are uninteresting to pedestrians, and if large enough may encourage visitors to turn around. Requiring a minimum frontage occupation of 70% lot width along sidewalks will help to address this issue (Forrest et al, 2018).
- Permit shared parking. Sharing designated parking areas between businesses that have different patterns of parking demand (ie: restaurants, retail, office space) will help to optimize parking, and encourage customers to park once when arriving for a multi-destination shopping trip (Forrest et al, 2018).

Long Term (3-5 years)

- Create a non-conforming clause for existing auto dealerships grandfathered into areas currently zones as B-2. This clause added to the code of a Village Center Overlay Zone would require that any new development on the property can be built only in accordance with current zoning laws (The Planning & Zoning Resource Company, 2020).

Next Steps / Implementation:

1. Identify area for Overlay Zone within 5-minute walking radius of the Metra station
2. Test proposed short-term zoning changes within the overlay radius
3. Incrementally adapt changes that have been successful
4. Apply for CMAP's Embedded Staff Planner (ESP) Program to supplement Village staff capacity in the implementation of a new zoning program
5. Establish code for village-center Overlay Zone

Possible Funding Sources:

CMAP Chicago Metropolitan Agency for Planning

OPTION #1: PEDESTRIAN SPACES (PLANTERS)

Description & Objectives:
Tactical urbanism is a method of creating and implementing cost-effective solutions to improve active transportation in a neighborhood or city (Pfeifer, 2013). An example is using planters to define and beautify public walking spaces as well as to create a visible, physical barrier between pedestrians and traffic. A Texas study found that landscape improvements resulted in a 46 percent decrease in crash rates (Mok, et al., 2006).

Impact on Midlothian:
Under its existing program, "Keep Midlothian Beautiful", the Village has done an excellent job beautifying the city by adding planters and reducing litter in the downtown area. Our initiative builds on this success by applying tactical urbanism techniques to encourage increased pedestrian activity in the downtown area. Specifically, the Village can strategically place tall, visible planters in high-traffic areas, such as along the sidewalk in front of the car dealerships at 147th and Pulaski, to create a physical barrier between pedestrians and traffic. This would create a safer space for pedestrians and encourage residents and visitors to travel by foot more frequently. As a result, Midlothian can help to achieve its goals for a more sustainable and economically vibrant downtown area.

Example of a Planter

Source: Tactical Urbanist's Guide

Next Steps / Implementation:

1. Survey schools and/or the broader community to determine locations that feel unsafe for walking
2. Add planters to areas deemed unsafe for walking to create a defined walking or biking route and create a physical barrier between pedestrians and vehicles.
3. Survey the school or broader community after the planters have been implemented to measure how safe Midlothianites feel walking on the roads, how much the feeling of safety affects their willingness to walk, and their overall frequency of walking through the site area per week.
4. Continue to use surveys to measure impact on local walkability.

Possible Funding Sources:

KEEP MIDLOTHIAN BEAUTIFUL
KEEP AMERICA BEAUTIFUL AFFILIATE

TIF
Tax Increment Financing

OPTION #2: PEDESTRIAN SPACES (PAINT)

Description & Objectives:
Painting surfaces is another method of tactical urbanism and a common method to create pedestrian spaces. In best practices seen across the United States, paint has been used to creatively redecorate crosswalks and to build curb extensions. The objective is to use the brightly colored designs to designate spaces for people as opposed to cars. The paint also creates a "positive distraction" by alerting drivers to the presence of pedestrians and acting as a reminder to slow down (Ward, 2019).

Impact on Midlothian:
The intersection of 147th and Pulaski has been identified as a place of interest for the Village of Midlothian. Not only is it a site of speeding, which creates a dangerous environment for a pedestrian or cyclist, but it is also within a 10-minute walk of the Metra Station and creates the outer edge of the Downtown Village Center. Of note, the Downtown Village Center is also the location of the new Tax Increment Financing (TIF) district. With this future expansion and development in the area, Midlothian is likely to experience increased foot traffic. Therefore, it is important that the Village consider ways to create visible and well-defined pedestrian spaces so that residents and visitors can safely explore the downtown area and any new attractions.

Source: Street Plans

Next Steps / Implementation:

1. Partner with IDOT and Cook County to identify areas for curb extensions and potential crosswalks for redesign.
2. Survey local schools or the broader community after the painted pedestrian spaces have been implemented to measure how safe Midlothianites feel walking on the roads, how much the feeling of safety affects their willingness to walk, and their overall frequency of walking through the site area per week.
3. Continue to use surveys to measure impact on local walkability.

Possible Funding Sources:

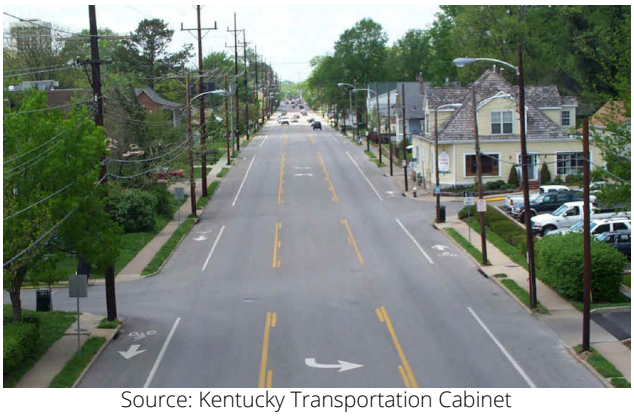
TIF
Tax Increment Financing

OPTION #2: ADD BIKE LANES ON PULASKI

Description & Objectives:
In recent years, many cities have created significant cycling populations by investing in downtown bike networks. There are many benefits to creating bike networks in neighborhoods and cities. When properly designed, bike lanes make streets safer for people by reducing oversized driving lanes and slowing down car traffic. There are also significant economic and health-related advantages to implementing bike lanes in cities. These include:

Economic:

- **Higher home values:** A 2006 study found that in Minneapolis, Minnesota, median home values rose $510 for every quarter mile closer the homes were located to an off-street bikeway (Krizek, 2006).
- **Increased local talent:** Several recent studies have shown that younger people are increasingly disenchanted with driving. Among people aged 16 to 34, bike trips have increased 24 percent (Davis & Dutzig, 2012). Therefore, cities with bikeways are likely to attract a younger population and talent pool.
- **Greater visibility and improved sales for local shops:** A 2008 Australian study showed that per square foot, bike parking produced more than three times the revenue for businesses than car parking in an hour (Lee, 2008).



Source: Kentucky Transportation Cabinet

- **Bike lanes increase the share of bikers:** The results of a study of 33 large U.S. cities showed that each additional mile of bicycle lane is associated with an approximate one-percent increase in the share of bike-to-work trips (Buehler & Pucher, 2012).
- **Savings for the city and residents:** A study by the Victoria Transport Policy Institute estimates that replacing a car trip with a bike trip saves the community $2.73 per mile. The amount results from the benefits of congestion reduction, roadway cost savings, vehicle cost savings, parking cost savings, air pollution reduction, energy conservation, and traffic safety improvements (Litman, 2020).

Health:

- **Reduced health-related costs:** There are many different ways to estimate the health cost savings of bicycling. The values vary depending on study design, medical conditions attributed to inactivity, cost data availability, and other variables, but all studies show positive outcomes. For example, a study on the cost and benefits of cycling in Portland found health care savings of $ 600 million annually (Gotschi, 2011).

OPTION #2: ADD BIKE LANES ON PULASKI (CONT'D)

Impact on Midlothian:

Midlothian could benefit from all of the above listed advantages by implementing bike lanes. In particular, bike connectivity to the Metra station and public buildings and schools is recommended. As a start, we recommend introducing bike lanes along Pulaski Road which could be extended along Pulaski through the county. Pulaski connects the elementary and the high school as well as Midlothian heights with the downtown area. Further, the street is close to the Metra station and is connected to the creeks, where bike trails could be extended. A plan to reshape the entire Pulaski road is currently being explored by the County, which could invite collaboration and coaction. Pulaski currently has a lane width of 12 feet, which exceeds the optimal lane width of 10 feet, so a bike lane could be introduced without impacting traffic.

Next Steps / Implementation:

1. Measure current traffic levels on Pulaski
2. Evaluate optimal number of lanes and lane width in order to design the optimal lane structure set per the guidelines and advice on well-known planner and architect, Jeff Speck
3. Align bike plan with "ImprovePulaskiRoad.org" initiative by Cook County department of transportation

Source: Fast Company

Possible Funding Sources:

Chicago Metropolitan Agency for Planning

National Center for Applied Transit Technology

U.S. Department of Transportation
Federal Highway Administration

OPTION #1: REFURBISH 3824 147TH STREET INTO A MICROBREWERY

Description & Objectives:

Just a few steps away from the Metra Station rests an unoccupied building (3824 147th Street) with ample square footage that is both for sale and rent. This prime location is further enhanced by the green space and gazebo across the street. We recommend purchasing the building and sustainably refurbishing and retrofitting it such that it meets the required needs of a brew-pub. The building can then be leased or sold to a craft brewery.

This option includes outfitting the building with up-to-date insulation and the roof with solar energy, both of which will save future tenets in energy costs. These upgrades will improve the integrity and attractiveness of the building, making it more compelling for potential brewers to select the location. By refurbishing the building, the town maintains the classic feel while still providing a quality space. In the case of an established craft brewer (e.g. Goose Island), such features would be attractive to the parent company, aligning with their sustainability goals. The enhanced sustainability qualities would also be relevant to upstarts, allowing them to tout their sustainability credentials to potential customers, and particularly align their brand with the values of younger potential patrons.

From a cost perspective, the town will save on

Source: The Village of Midlothian

demolition and construction services as well as building material costs. We estimate that the town would need to spend $150,000-200,000 on the down payment for the property, assuming 15-20% on a $1million valuation; $25,000 on solar implementation; $100,000 for building insulation and efficiency improvements; and $25,000 on LEED certification ("Green Buildings Don't Have to Cost More," 2017). While this is not an all-encompassing list of potential costs, it provides a clear starting point for assessing the value of the opportunity.

From the standpoint of potential brewer tenants, Midlothian's ample population lends itself to a potentially higher volume of patrons. For example, Midlothian boasts 14,000 residents compared to 2,000 residents in Petersburg, Illinois, where the popular Hand of Fate Brewing craft brewery operates. Additionally, a Midlothian brewery would be visible to Metra riders and easily accessible from the nearby station, making it a visible and desirable destination for residents and visitors alike.

OPTION #1: REFURBISH 3824 147TH STREET INTO A MICROBREWERY (CONT'D)

Source: The Village of Midlothian

Impact on Midlothian:

The impact of craft brew-pubs has been well documented in small- and mid-sized communities all over the United States (Stoller, 2019). A research study from the University of Maine found that craft breweries contribute an economic multiplier of 1.5x in their respective states, clearly illustrating their popularity and economic impact (Crawley 2019). Following the opening of Hand of Fate Brewing in Petersburg, Illinois, for example, two boutique retail shops also opened their doors for business (Sisson, 2017). Additionally, 'beer tourism' is a growing phenomenon where people travel to new locations to visit different craft breweries.

Therefore, there are multiple potential benefits to Midlothian for having a local brewery. First, the Village can benefit from the direct property and sales tax generated by the brew-pub and increased economic activity in the area. Second, the brewery would create an incentive for visitors to stop and explore the town, both as a place for social gatherings and potential place to live. Ultimately, this change in perception could boost population growth and consequently town revenue. And finally, a brew-pub may also facilitate local artistry (e.g. music or art shows within the venue), adding to the culture of the town.

Acknowledging the uncertainty around the COVID-19 crisis, it is worth noting that due to the open green space and gazebo just across the street (see images), the city could create an outdoor space for customers to purchase craft beer and socialize in a safe manner. This would require clear demarcation of the space where alcohol consumption is allowed and table spacing of 6 feet or more, in-line with health guidelines from the Centers for Disease Control and Prevention.

Next Steps / Implementation:

1. Contact local brewers to get a sense for the landscape, appetite for expansion, and startup costs that may be avoided by initial refurbishment
2. Survey contractors for necessary work and estimated costs
3. Secure a letter of intent from a brewer
4. Secure funding

Possible Funding Sources:

McKNIGHT FOUNDATION

Surdna Foundation

OPTION #1: REFURBISH MR. YOUNIS' SOUTHERN LOT

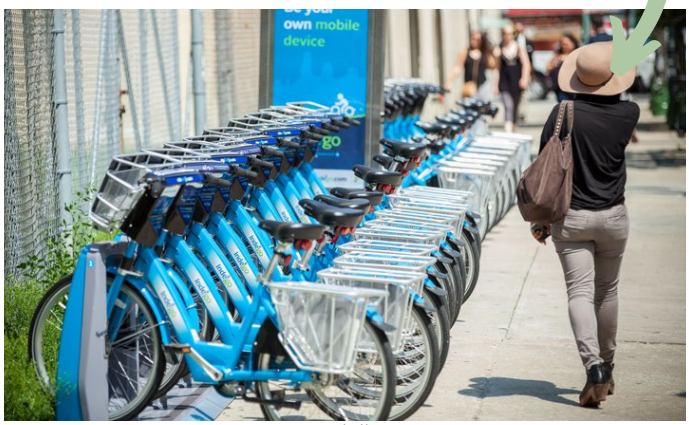
Description & Objectives:

As outlined in a previous section of this report, creating space for bikers is critical to improving the health and mobility of a city and to reducing the reliance on automobiles. Midlothian is already committed to creating space for bikers and connectivity among surrounding communities through the Natalie Creek Trail. The Village can build on this plan and promote the use of potential bike lanes in the area by utilizing an existing lot for a bike bike-share program or bike store.

Bike-Share Project:

We recommend implementing a bike-share program on 147th and Pulaski (Mr. Younis' southern lot). This option would require upfront capital and maintenance but does not involve the costs required for managing a store front. Further, this option can scale depending on interest and serves potential riders at a lower price point, as it is more affordable to rent or share a bike than purchase one. Based on our research, the costs for implementing this solution ranges from $4,000-$5,000 per bike, or $100,000 for a pilot program with 20 bikes (Beitsch, 2016). We recommend the Village start small and scale higher depending on usage. Regarding rider fees, we recommend starting with a low rate at first to inspire usage and to gradually increase fees to help support the costs of expanding the number of available bikes, as appropriate.

Source: Google Maps



Source: Philly Voice

Mr. Younis is a local businessman interviewed by the Capstone Group.

OPTION #1: REFURBISH MR. YOUNIS' SOUTHERN LOT (CONT'D)

Bike Store:

As a second option, the Village should consider building a bike shop on the same lot. A bike shop would complement the overall goal of increasing bike traffic within the town center. This can be achieved by compelling an existing bike shop owner to expand their business to the new location. There are three local bike shops that the Village could contact to build interest, and then expand their outreach as needed. These include: Richards Bicycles, Reanimator Cycles, and Compleat Cyclist. It is important to note that, given the current environment, retail bike stores are facing some challenges. Therefore, the Village should consider this factor in their decision-making process.

Impact on Midlothian:

A bike store or bike-sharing program would have positive impacts for Midlothian, as they both encourage and facilitate more frequent bike trips through the Village. With more bikers and fewer cars on the road, the character and feel of the town center would improve to be more welcoming and pedestrian-friendly. Furthermore, this could encourage a new hobby for town citizens and make the town appear more attractive and family friendly.

Source: Google Maps

Source: Google Maps

Next Steps / Implementation:

1. Consult with economic development specialists to determine best use of space

Possible Funding Sources:

EPA United States Environmental Protection Agency

OPTION #1: CLIMATE RISK ASSESSMENT

Description & Objectives:
Cities around the world are vulnerable to the detrimental effects of climate change. Higher temperatures, more frequent and intense storms, rising sea levels and stronger storm surges adversely affect economic activity. The Midwest is already exposed to climate hazards and global warming is expected to amplify existing climate related risks to people, ecosystems, and infrastructure in the region. Specifically, average air temperature in the Great Lakes region has increased by approximately 2.0°F since the 1900s, faster than the global and national rates. Further, average temperatures in the region are projected to rise another 1.8°F to 5.4°F by 2050 (Pryor et. al., 2014). The village of Midlothian has already experienced the detrimental effects of climate change such as flooding, the recent storms and road buckling due to extreme heat.

The Midwest's agricultural lands, forests, Great Lakes, industrial activities, and cities are all vulnerable to climate variability and climate change in the following ways:

- **Agriculture impacts:** extreme climate variations that shift agricultural patterns, affecting the availability of food
- **Forest composition:** rising temperatures that cause die-outs and drive habitats for trees and tree-dwelling animal species northward
- **Public health risks:** increased heat and humidity that results in degraded air quality and higher health risks such as asthma and other cardiovascular complications
- **Fossil fuel dependency:** per capita emissions in the Midwest are 20% higher than the national average, driving significant localized climate impacts
- **Increased rainfall:** increased erosion and flooding, as well as poor water quality
- **Risks to the Great Lakes:** reduced fish species and rise in algae blooms

As such, we recommend the Village of Midlothian undertake a climate vulnerability assessment to understand its climate risks, both currently and in the long-term. Cities with vulnerability assessments are taking almost six times the amount of adaptation actions compared to those cities that have not taken vulnerability assessments, thus creating more resilient towns (CDP, 2020). A vulnerability assessment helps cities understand the severity of and the likelihood of future climate hazards and the impact these hazards could have on the city itself and its residents. This information will enable the city to prioritize investment dollars and actions into the climate adaptation and resilience that is most applicable to their risks.

Based on our research, a vulnerability assessment can be conducted by an academic institution (pro bono), a consulting firm or through a dedicated hired resource, with varying time and costs associated for each.

OPTION #1: CLIMATE RISK ASSESSMENT (CONT'D)

Impact on Midlothian:

A climate risk assessment will help the Village of Midlothian understand the likelihood of future climate hazards and the potential impacts on the town and its residents. Consequently, Midlothian can act to build resilience and protect its citizens. This assessment will enable Midlothian to prioritize actions and investments, including those contained within this report.

Next Steps / Implementation:

1. Establish the context for the assessment by setting the objectives and desired outcomes
2. Determine internal resources to facilitate and oversee the assessment
3. Determine external resources required to conduct the assessment
4. Identify and engage dedicated entity that will conduct the assessment
5. Identify existing datasets
6. Commence the assessment

Possible Funding Sources:

EPA United States Environmental Protection Agency

Center for Climate Change & Health

Sea Grant ILLINOIS-INDIANA

OPTION #2: DE-PAVING

Description & Objectives:
De-paving is a low-cost method that frees soil from impervious surface covers such as asphalt and concrete. The purpose of de-paving is to increase the permeability of surface areas while also mitigating the heat-island effect, reducing stormwater pollution, and allowing habitat restoration. In some cases, it can also be used to establish a new community gathering place. As a starting point, depaving is best deployed as a small-scale project in an unused lot or extra parking space that could benefit from green space. Successful depaving initiatives often take place in the parking lots behind churches, schools or the local library.

Impact on Midlothian:
Midlothian is a prime candidate for de-paving due to its high exposure to flooding and heat stress, especially the central business district and around the schools. De-paving will not only reduce heat and stormwater, but also foster a community base, re-identifying the town. The use of native plant species will ground the projects in their local context and provide a new effort to rally the community. We recommend selecting sites where swathes of concrete go mostly unused, such as the parking lot in between the McDonalds and Springfield Elementary School or the empty lot between the triangle-shaped park and the Veterans of Foreign Wars Office. This will create additional permeable green space to function in addition to the current permeable parking lots.

Source: Andre Shepley

Source: DePave

OPTION #1: DE-PAVING (CONT'D)

Next Steps / Implementation:

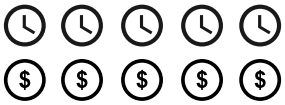
1. Develop project proposal, including a plan for intended use
    a. Common uses include an urban garden, bioswales, and planters for trees or native plants
2. Select site for depaving to be implemented
3. Conduct a soil analysis of the selected location
    a. A soil analysis is especially important if the depaving project will be used to build a community garden that will house produce. Soil health can greatly impact the safety of the fruits and vegetables grown in the garden, and as such must be tested for lead and other toxic materials (Iserhott, et al.).
    b. Infiltration tests are crucial to understanding how well soil will absorb rainwater and only take a few hours to complete. The organization DePave offers a how-to guide on conducting infiltration tests.
4. Break ground
5. Host event at newly created community space

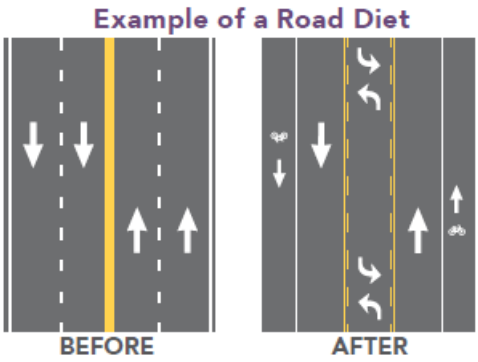
Possible Funding Sources:

Tax Increment Financing

ADDITIONAL CONSIDERATIONS

OPTION #1: ROAD DIET





Source: FHWA

We heartily suggest a road diet for Pulaski and 147th Street. A "road diet" means restriping a stretch of road to remove at least one lane and turning that pavement over for other uses such as space for pedestrians and cyclists. Multiple studies of the road diet have proven to both the Federal Highway Administration (FHA) and transportation departments across the nation that it is a relatively cheap way to reduce collisions. FHA studies have discovered that a road diet that reduces the number of lanes dedicated to cars reduced vehicle crashes by 19 to 52 percent as a result of reduced speeds. And according to the FHA, the technique doesn't reduce the amount of throughput a roadway can handle (Keatts, 2015).

OPTION #2: ROUNDABOUT


Source: YouTube

A roundabout is an additional traffic calming measure that forces drivers to pause and pay attention to bicyclists and pedestrians. Roundabouts force an immense slow down before entering the traffic intersection and show big returns on safety ("Roundabouts: A Safer Choice," N.D.):

- 35 percent reduction in overall collisions
- 76 percent reduction in injuries
- 90 percent reduction in fatalities

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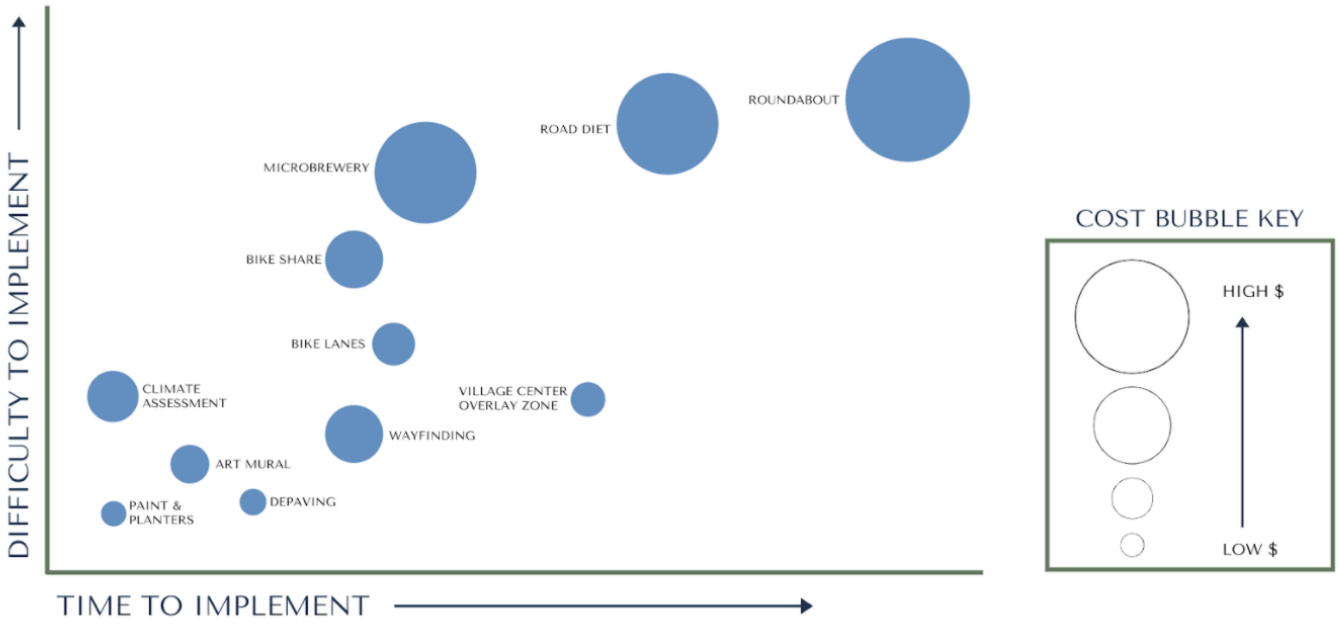
CONCLUSION

As has been outlined throughout the course of this report, there are multiple solutions that the Village of Midlothian may pursue to achieve a sustainable, resilient, vibrant, and walkable downtown area. Each of the recommended options was selected based on its viability, cost-effectiveness, impact on potential long-term economic growth and sustainability, and timeline to completion.

As a next step, we encourage the Village to assess the recommended solutions and determine which they find most desirable and feasible to implement. The Village may select one or multiple projects to implement, as the solutions complement and build on the success of one another. For example, the Village may initially consider selecting projects that can be achieved in the short-term and at a lower price point. Over time, if such projects prove successful, and Midlothian is able to secure additional resources as needed, the Village may choose to scale these projects or pursue one of the long-term, transformative projects to build on its previous successes.

In order to assist the Village in its assessment, we have outlined each of the proposed solutions in terms of cost- and time-intensity. By implementing some or all of the recommended solutions, the team believes that Midlothian can take the important steps necessary to remain resilient in the face of climate change, while also reestablishing the vibrancy and appeal of its downtown area.



APPENDIX - CASE STUDIES

WAYFINDING

Case Study: Fort Collins Wayfinding System Plan (Mehlem, 2015)

- Principles to keep in mind: Connect Places, Promote Active Travel, Maintain Motion, Be Predictable, Keep Information simple
- Bicycle Signage Case Studies best practices
  - High-contrast graphics
  - Maximum limit of three destinations per sign
  - Custom enhancement marker
  - Distances have both length and time
  - Unique identifying color
  - High Contrast

ART MURAL

Case Study: Philly Painting (Benfield, N.D.)

- Neighborhood beautification project at an unprecedented scale in North Philadelphia
- "A social and artistic experiment of urban acupuncture, beautification, and economic stimulus"
- Worked hand-in-hand with the local community

B-2 ZONING

Case Study: New Rochelle, NY: Form-Based Zoning (Quinn-Smith, 2019)

- A suburb of New York City, New Rochelle had struggled for years to jumpstart new development in its downtown area. After several previously unsuccessful attempts at revitalization, in 2015 the city implemented a new form-based zoning code by way of a Downtown Overlay Zone (DOZ).

B-2 ZONING (CONT'D)

- The DOZ "...prioritizes human-scaled, walkable development envisioned by residents during the engagement process and is less prescriptive of each building's specific function (anything from residential to light industrial is permitted across all zones)."
- A key factor of the success of the DOZ code lies in that it is easy to understand and fast-tracks development projects for approval, encouraging new businesses to enter the area. Before implementing the DOZ, the city of New Rochelle undertook an in-depth public engagement process to ensure that any reform would be supported and championed by the community.
- Within three years of implementing the DOZ New Rochelle approved thirty-one new development projects, many of which are mixed-use residential projects. The result is "...a walkable, transit-oriented hub for residents to live, work, and play."

PEDESTRIAN SPACES (PLANTERS & PAINT)

Case Study - Baltimore Avenue in Philadelphia, PA (Fisher, 2013)

- University City District installed floral planters to border new painted bumpouts along the busy intersection of Baltimore Avenue in Philadelphia
- By reducing the amount of roadway pedestrians must cross, the project reduces the amount of time pedestrians are in the crosswalk and exposed to vehicles, thereby improving safety.

APPENDIX - CASE STUDIES

BIKE LANES ON PULASKI

Case Study - Bike Lanes in Brooklyn, NY ("Prospect Park West Bicycle Path and Traffic Calming Update", 2011)

- Introduction of a cycle track on Prospect Park West in Brooklyn, NY.
- A 3-lane one-way street was converted to 2 lanes, and a cycle track was inserted in the space created.
- As a result, the number of weekday cyclists tripled, and the percentage of speeders dropped from 75 percent of all cars to less than 17 percent. Injury crashes to all road users decreased by 63 percent from prior years.

REFURBISH 3824 147th STREET INTO A MICROBREWERY

Case Study: The Hand of Fate brew-pub, in Petersburg, Illinois (Sisson, 2017)

- The Hand of Fate brew-pub started in Petersburg, a town with just 15% of the population of Midlothian.
- The town had the reputation of being a 'ghost town' prior to the brewery's opening, which then quickly turned around.

REFURBUSH MR. YOUNIS'S SOUTHERN LOT

Case Study: Bikeshare in New York City, NY ("Bike-Share Opportunities in New York City (Part 3: Case Studies)," 2008)

- *While New York City is certainly not a comparable location, its bike sharing program has led to successful outcomes in facilitating more cycling within its jurisdiction.*

CLIMATE RISK ASSESSMENT

Case Study: Boston, MA ("Climate Vulnerability Assessment," 2017.)

- Many cities are undertaking vulnerability assessments that do not just assess current risks, but those expected to hit in the coming years such as Cleveland, Fayetteville and Boston. For example, Boston's vulnerability assessment determined that extreme heat, stormwater flooding, and coastal riverine flooding are the key hazards facing Bostonians.
- Consequently, the city developed a process to evaluate the impact of each hazard on people, buildings, infrastructure and the economy.
- Upon completing its vulnerability assessment, Boston launched an initiative called "Climate Ready Boston" to help plan for the impacts of climate change and build a resilient future. This plan addresses the specific climate challenges and adaptive capacity of each region in the Greater Boston area.

DE-PAVING

Case Study: Newport Urban Center (Schwartz, N.D.)

- Engages a variety of different stakeholders, leaning in on local NKU students
- Focuses on improving the water quality as de-paving provides infiltration and storage of stormwater
- Two central themes to their strategic de-paving project
  - Community engagement
  - Transdisciplinarity

APPENDIX - INTERVIEWEES

- Katie Bell - Project Studies Manager at Cook County Department of Transportation and Highways
- Kate Bolinger - Lead Planner of Ellicott City, Howard Country, Maryland
- Tulsi Bryne - Responsible Investment Team Member at Nuveen
- Peter Conrad - Deputy Director of Ellicott City, Howard Country, Maryland
- Jim Dace - Midhlothian Realtor
- Kate Evasic - Senior Planner at CMAP
- Malo Hutson - Professor at Columbia University
- Justin Keller - Associate at Metropolitan Planning Council
- Karen Kreis - Client and Trustee to the Village of Midlothian
- Dennis Latto - Previous Transportation Planner at SSMMA
- Helen Lekavich - Local Advocate in Midlothian
- Jessica Long - Head of Sustainability for Nuveen Real Estate
- Mary Madden - Zoning Expert and Partner at Ferrell-Madden
- Eric Neagu - Principal at Antero Group
- Willa Ng - Director of Mobility, Streets, & Urban Systems at Sidewalk Labs
- Leslie Phemister - Current Transportation Planner at SSMMA
- Heather Schady - Senior Transportation Planner at Active Transportation
- Jeff Speck - City Planner and Architectural Designer at Speck and Associates
- Nick Weiner - Building Superintendent in Midlothian
- Lynette Widder - Professor at Columbia University
- Sam Younis - Local Businessman and Owner of Midlothian Cars Inc.

APPENDIX - FUNDING SOURCES

- Beautify Earth
  - Beautify Earth is an online platform that provides resources to cities for designing and raising money for art murals. Cities, towns and even local businesses can crowdfund for murals on the site as well as choose and design murals from artists who post their work on the platform.

- The Center for Climate Change and Health
  - The American Public Health Associations's (APHA) Center for Climate, Health and Equity leads public health efforts to inspire action on climate and health, advance policy and galvanize the field to address climate change. APHA is the leading voice on the connection between climate and public health.

- Chicago Metropolitan Agency for Planning (CMAP) Embedded Staff Planner Program
  - The Embedded Staff Planner Program designates CMAP staff to serve for a two-year period as temporary planners in communities with capacity constraints. In order to participate in this program, a community must be able to demonstrate four qualities, including: interest and need by the community; an existing relationship with CMAP; positive feedback from other entities (e.g. SSMA, MPC, MMC); and staff support for planning.Illinois Art Council

- Chicago Metropolitan Agency for Planning (CMAP) Local Technical Assistance Program
  - The CMAP program provides planning, and in some cases financial, assistance to communities across the Chicago metropolitan region to undertake planning projects that advance the principles of its ON TO 2050 Plan to address local issues at the intersection of transportation, land use, and housing, including the natural environment, economic growth, and community development. Common projects include updating municipal comprehensive plans and zoning ordinances, developing sub-area plans for specific commercial or industrial districts, sustainability plans, and parking management planning.

- The Cook County Department of Transportation and Highways: Invest in Cook
  - This program covers the cost of planning and feasibility studies, engineering, right-of-way acquisition, and construction associated with transportation improvements sponsored by local and regional governments and private partners. This program is designed to solicit applications for improvements consistent with the five priorities of Connecting Cook County, the County's first long range transportation plan, as well as the recommendations of the Cook County Freight Plan.

APPENDIX - FUNDING SOURCES

- Environmental Protection Agency: Environmental Justice Small Grants Program
  - The EPA's Environmental Justice Small Grants Program provides funding to communities for projects that target environmental and health issues. Projects are eligible for funding of up to $30,000 is awarded and must be associated with a minimum of one environmental statute, such as clean air, land revitalization or safe drinking water.

- Environmental Protection Agency: Smart Growth Grants
  - The Environmental Protection Agency (EPA) offers grants to support activities that improve the quality of development and protect human health and the environment. Smart growth strategies help communities grow in ways that expand economic opportunity while protecting human health and the environment.

- Highway Safety Improvement Program (HSIP)
  - The Highway Safety Improvement Program (HSIP) is a core Federal-aid program with the purpose to achieve a significant reduction in traffic fatalities and serious injuries on all public roads. This program includes support for road diets.

- The Illinois Art Council
  - The Illinois Art Council has multiple grant opportunities that promote art statewide. Some grants support the work of an individual artist while others provide opportunities for organizations to scale artistic initiatives in Illinois.

- The Illinois-Indiana Sea Grant (IISG)
  - Illinois-Indiana Sea Grant (IIGS) is funded through the National Oceanic and Atmospheric Administration (NOAA), the University of Illinois and Purdue University. IISG also works in partnerships with key organizations, institutions, and agencies in the region to reach more audiences and multiply opportunities for success. IISG helps communities prepare for the challenges of climate change, including understanding areas that are most vulnerable and how negative impacts associated with climatic changes might be mitigated.

- In Our Backyards (Ioby)
  - Ioby is a crowdfunding platform designed to encourage civic participation and community engagement. All donations made to the project on the site are tax-deductible. In order to crowdfund on ioby, a project must be related to sustainability, health or livability. Ioby's team of experts can also help communities connect with relevant professionals in urban planning, community organizing, etc. in order to drive their project forward

APPENDIX - FUNDING SOURCES

- Keep Midlothian Beautiful / Keep America Beautiful
  - Keep America Beautiful is the nation's iconic community improvement nonprofit organization. Keep America Beautiful's Network mobilizes more than an estimated five million volunteers each year to take positive action on community improvement concerns. As a result, litter is being reduced; solid waste is being managed responsibly; citizens are improving vacant lots, highways and other public spaces; trees and flowers are being planted; and recycling and composting efforts are expanding.

- The McKnight Foundation: Midwest Climate & Energy Grant
  - The McKnight Foundation is a family foundation based in Minnesota with the goal to create a more just, creative, and abundant future where people and the planet thrive. The organization leads programs, offers grants, and makes investments in effort to build resilient, equitable and diverse communities in the Midwest

- Metropolitan Water Reclamation District (MWRD)
  - The Metropolitan Water Reclamation District of Greater Chicago provides funding for local municipalities and public agencies. Funding can be used for projects that involve green infrastructure installation in towns throughout Cook County. Projects must be used for stormwater management solutions.

- National Center for Applied Transit Technology (N-CATT): Urbanized Area Formula Grants – 5307
  - The N-CATT Urbanized Area Formula program (49 U.S.C. 5307) makes federal resources available to urbanized areas and to governors for transit capital and operating assistance in urbanized areas and for transportation-related planning. In addition, associated transit improvements and certain expenses associated with mobility management programs are eligible under the program.

- Our Town
  - Our Town is the National Endowment for the Arts' creative placemaking grants program. Through project-based funding, Our Town supports projects that integrate arts, culture, and design activities into efforts that strengthen communities by advancing local economic, physical, and/or social outcomes.

- Preserve America Grants
  - Preserve America is a United States government program intended to encourage and support community efforts to preserve and enjoy the community's cultural and natural heritage. Grants are awarded to designated Preserve America Communities to support planning, development, implementation, or enhancement of innovative activities and programs in heritage tourism. Eligible grant activities include research and documentation, planning, interpretation/education, promotion, and training. Successful projects involve public-private partnerships and serve as models to communities nationwide for heritage tourism, historic preservation, education, and economic development.

APPENDIX - FUNDING SOURCES

- Regional Transportation Authority (RTA) Access to Transit Program
  - The Regional Transportation Authority launched the Access to Transit program in 2012 to provide funding for small-scale capital projects that improve pedestrians' and bicyclists' access to public transportation.

- Regional Transportation Authority (RTA) Community Planning Program
  - The Regional Transportation Authority (RTA) Community Planning program offers technical assistance and funding to local governments and intergovernmental organizations to address local planning needs that intersect public transportation and land use. Through this assistance the RTA encourages municipalities in the region to develop walkable and more sustainable communities near transit stations and along transit corridors.

- Regional Transportation Authority (RTA) Innovation, Coordination, and Enhancement
  - The Innovation, Coordination, and Enhancement (ICE) program provides funding assistance to enhance the coordination and integration of public transportation and to develop and implement innovations to improve the quality and delivery of public transportation. Projects funded through this program advance the vision and goals of the RTA by providing reliable and convenient transit services and enhancing efficiencies through effective management, innovation and technology.

- Scott's Miracle-Gro Foundation
  - Scott's Miracle-Gro Foundation's annual Gro More Good Grant provides funding for community garden and greenspace projects. In order to be eligible for the grant, the project must serve 15 or more youth. Funds can be used to design new greenspace or expand existing greenspace in a community. In prior years, the amount of funding awarded to each project ranges from $500-$1,000.

- Surdna Foundation
  - The Surdna Foundation supports social justice reform, healthy environments, inclusive economies, and thriving cultures across the United States. It does this by leading programs, offering grants, and making investments in initiatives that advance these core organizational goals.

- Tax Increment Financing (TIF)
  - Tax Increment Financing is a tool used by municipal governments to stimulate economic development in a geographic area. TIFs can be used to finance redevelopment projects or ther investments using anticipated future tax revenues resulting from new development

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THE VILLAGE OF MIDLOTHIAN, ILLINOIS

SUMMER/2020

A SUSTAINABLE & RESILIENT PLAN

COLUMBIA UNIVERSITY
School of Professional Studies

Source: Google Maps

Source: AllTrails

PRESENT : FUTURE

In May 2020, the Village of Midlothian, Illinois, engaged Columbia University as a consultant to reimagine and develop a plan for the Village's downtown area. Midlothian has made great strides towards advancing the resiliency of the town through the Natalie Creek Project, the Keep Midlothian Beautiful partnership, and the permeable pavement parking lot. However, we recognize the challenging issues that the village encounters with climate change, flooding, heat stress, population migration, and divestment.

Our research project aimed to address these formidable issues by identifying practical, timely, and cost-effective solutions for the town of Midlothian. Our vision included a sustainable, resilient, vibrant, and walkable downtown area. With this goal in mind, the team explored, assessed, and identified four key subject areas where change can be most impactful. These include:

- Placemaking
- Mobility
- Economic Development
- Climate Adaptation

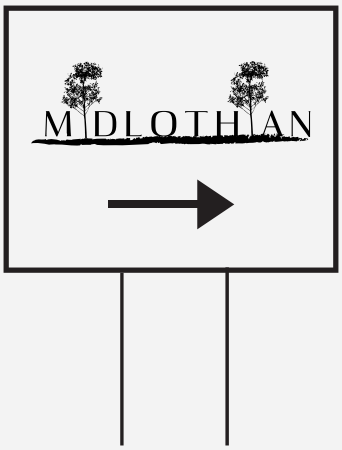
By implementing some or all of the solutions, the team believes that Midlothian can take the important steps necessary to remain resilient in the face of climate change, while also reestablishing the vibrancy and appeal of its downtown area – making Midlothian an attractive area to live, visit and explore for years to come.

We welcome the opportunity to discuss these ideas with you on August 12, 2020. We would also like to express our admiration of Karen Kreis and all the Village Board for their commitment to improving the future of Midlothian.

SHORT-TERM RECOMMENDATIONS

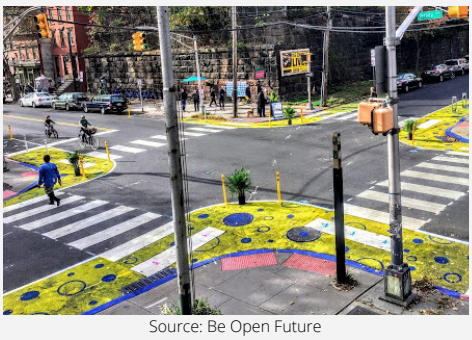
PLACEMAKING

Through changing the current downtown Village zoning code, adding an art mural, and creating distinct signage, Midlothian will gain a stronger sense of place and a strengthened identity. Community rejuvenation projects have the ability to change the dynamics of a neighborhood with little up-front cost or planning. Creating a shared identity and sense of place can also spark resident morale and encourage more economic development, as business owners are enticed to invest in and develop nearby spaces.



MOBILITY

The intersection of 147th and Pulaski has been identified as a place of interest for the Village of Midlothian. Not only is it a site of speeding, which creates a dangerous environment for a pedestrian or cyclist, but it is also within a 10-minute walk of the Metra Station and creates the outer edge of the Downtown Village Center. When executed in conjunction with our other recommendations, prioritizing mobility adds to the health, connectivity, and economic vibrancy of the Village as a whole.



Source: Be Open Future

SHORT-TERM RECOMMENDATIONS

ECONOMIC GROWTH

Just a few steps away from the Metra Station rests an unoccupied building (3824 147th Street) with ample square footage that is both for sale and rent. We recommend the Village partner with a developer to sustainably refurbish and retrofit the building such that it meets the required needs of a brew-pub. The building can then be leased (or sold) to a craft brewery. Another site for recommended refurbishment is Mr. Younis' Southern Lot, which would make an excellent site for a bikeshop or a bikeshare program. The added mobility would also contribute to the economic growth of the Village.

Source: Time Out

CLIMATE ADAPTATION

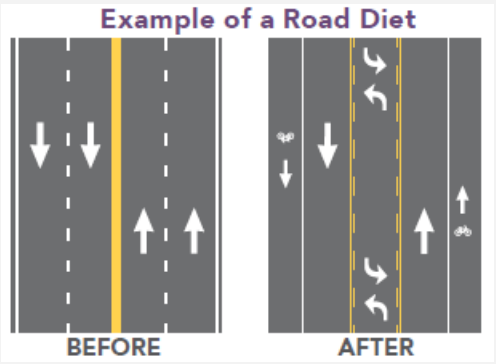
We recommend the Village of Midlothian undertake a climate vulnerability assessment to understand the degree to which it will experience climate risks, such as urban heat, inland flooding, and extreme precipitation. This assessment will enable Midlothian to prioritize actions and investments. Such an assessment would be an exciting project for another University study. Another recommended method of climate adaptation is de-paving, which would add to the already robust water mitigation plans in place. De-paving is a cost-effective method that frees soil from impervious surface covers such as asphalt and concrete (see image to right).


Source: Yardmap

LONG-TERM RECOMMENDATIONS

ROAD DIET

We heartily suggest a road diet for Pulaski and 147th Street. A "road diet" means restriping a stretch of road to remove at least one lane and turning that pavement over for other uses such as space for pedestrians and cyclists. Multiple studies of the road diet have proven to both the Federal Highway Administration and transportation departments across the nation that it is a relatively cheap way to reduce collisions. FHA studies have discovered that a road diet that reduces the number of lanes dedicated to cars reduced vehicle crashes by 19 to 52 percent as a result of reduced speeds. And according to the FHA, the technique doesn't reduce the amount of throughput a roadway can handle [A].

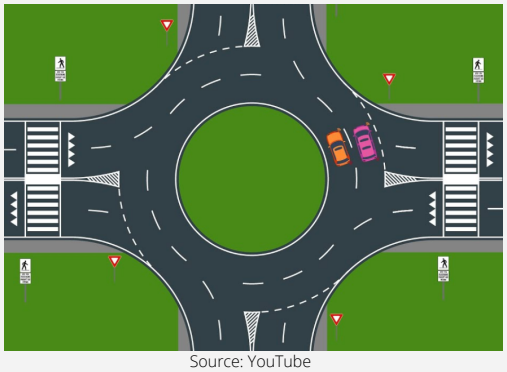


Source: FHWA

ROUNDABOUT

A roundabout is an additional traffic calming measure that forces drivers to pause and pay attention to bicyclists and pedestrians. Roundabouts force an immense slow down before entering the traffic intersection and show big returns on safety [B]:

- 35 percent reduction in overall collisions
- 76 percent reduction in injuries
- 90 percent reduction in fataliies



Source: YouTube

[A] Keatts, Andrew. "What Are 'Road Diets,' and Why Are They Controversial?" September 2015. The Kinder Institute, Rice University.
[B] Roundabouts: A Safer Choice [Brochure]. Federal Highway Administration, U.S. Department of Transportation.