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Properties along West Main Street
View east through Monocacy Creek Park
EXECUTIVE SUMMARY

The Lehigh Valley Planning Commission, in an effort to promote cooperative planning, provides technical assistance to communities experiencing challenges. The LVPC was invited by the Borough of Bath to conduct a parking analysis to determine whether there are sufficient parking accommodations in the commercial district. The LVPC proceeded with a two-phase approach.

In Phase I, the LVPC conducted an analysis of a roughly one square-mile ‘study area’, centering on parking usage and overall availability in the Borough’s downtown during peak and off-peak periods. However, several additional challenges became apparent, not only with parking capacity but with the efficiency of the overall transportation network and its impact on the safety of motorists, pedestrians and cyclists. Opportunities to support future growth and economic development were also identified. The analysis was therefore expanded to include a profile of the Borough’s road network, its residents and a review of its current planning and zoning ordinances.

Phase II of the project was dedicated to developing realistic strategies that could be implemented in short, mid and long-term time frames. These strategies were built on a foundation of three key goals:

**SAFETY FOR ALL USERS**

**ADEQUATE PARKING + CONNECTIVITY FOR ALL USERS**

**PREPARATION FOR FUTURE GROWTH OF THE BOROUGH**

The goals and the recommendations that follow are in line with the Lehigh Valley Planning Commission policies related to multimodalism, safety, mobility, access and connectivity. The recommendations presented in this study are advisory, and the contents of this report are intended to aid in future grant proposals, council discussion topics and to serve as a foundation for further studies and actions.
PHASE I
SITE VISITS + DATA COLLECTION
Bath is located at an important crossroads of several state routes. This road network supports the movement of Bath’s 2600+ residents as well as the increasing volume of commuters and truck freight traffic passing through the region.
The boundaries of the study area were selected to encompass several identified problem areas and intersections in key commercial, residential and historic areas.
BOROUGH PROFILE

The purpose of this section is to understand the general profile of the Borough and its residents through statistics and local surveys. Demographic information tells us what type of residents live in the Borough, how the population is expected to grow, who is employed and how people travel to work. Other statistics highlight physical characteristics of the Borough, including the total length of roads and their condition, the distance to public transit and the number of businesses. Other public survey information tells us how people use the road system, where they park, how many tickets are issued and what type of vehicles they drive. All of these have implications on the way the road network of Bath is likely to be used in the future.
View south on North Walnut Street
MUNICIPAL STATISTICS*

County: Northampton
Type of Municipality: Borough
School District: Northampton Area

Land Use 2015 (in acres) (LVPC data)
- Residential: 243.9 (42.3%)
- Commercial: 21.0 (3.6%)
- Industrial: 23.6 (4.1%)
- Wholesale & Warehousing: 11.5 (2.0%)
- Transportation, Communications & Utilities: 74.5 (12.9%)
- Public & Quasi-Public: 51.5 (8.9%)
- Parks & Recreation: 35.4 (6.1%)
- Agriculture & Undeveloped: 114.6 (19.9%)
- TOTAL ACRES: 576.0 (100%)

Area: 0.80 sq. mi.


Assessed Value of Taxable Real Estate 2014: $52,797,800 (County data)

Real Estate Tax Millage Rates 2015
- Municipal: 15.00
- School District: 51.24
- County: 11.76
- TOTAL: 78.00

Population
- 1960 census: 1,736
- 1970 census: 1,829
- 1980 census: 1,953
- 1990 census: 2,356
- 2000 census: 2,676
- 2010 census: 2,693
- 2015 estimate: 2,680
- 2020 forecast (LVPC): 2,729
- 2030 forecast (LVPC): 2,807
- 2040 forecast (LVPC): 2,882

Housing Characteristics 2015
- Total housing units: 1,085
- Persons per Household: 2.58
- Occupied Housing Units: 1,016
  - Owner occupied: 594
  - Renter occupied: 423
- Vacant Housing units: 69

COUNTY RANK

Although the Borough doesn't have a high rate of vacancies in comparison to other county municipalities, vacant units are an important consideration. They will house potential vehicle owners who may contribute to local and regional traffic and parking demands. At an average of 2.58 people per household, Bath's vacant units could accommodate 178 more people. The vehicles owned by these people would also need to be accommodated.
### County Rank

**1st highest by percentage**

This indicates that an increase can be expected in the borough for demand of jobs as people enter the workforce, as well as demand for additional vehicles as people become a driving age.

**4th highest by percentage**

This indicates that some residents may have particular difficulty absorbing increases in tax millage rates necessary to support vital needs within the Borough, including infrastructure improvements. Poverty level also impacts the ability to bear the costs related with vehicle-ownership, which means that alternative transportation modes and networks need to be supported within the Borough.

---

### Age Data 2015

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Age</td>
<td>35.7</td>
<td></td>
</tr>
<tr>
<td>Under 19 years</td>
<td>871</td>
<td>(32.5%)</td>
</tr>
<tr>
<td>65 years and over</td>
<td>415</td>
<td>(15.5%)</td>
</tr>
</tbody>
</table>

### Gender Data 2015

<table>
<thead>
<tr>
<th>Gender</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>1,212</td>
<td>(45.2%)</td>
</tr>
<tr>
<td>Female</td>
<td>1,466</td>
<td>(54.8%)</td>
</tr>
</tbody>
</table>

### Selected Race & Hispanic Origin Characteristics 2015

<table>
<thead>
<tr>
<th>Race &amp; Hispanic Origin</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>2,422</td>
<td>(50.3%)</td>
</tr>
<tr>
<td>Black or African American</td>
<td>167</td>
<td>(6.2%)</td>
</tr>
<tr>
<td>American Indian, Alaska Native</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>5</td>
<td>(0.2%)</td>
</tr>
<tr>
<td>All Others</td>
<td>87</td>
<td>(3.3%)</td>
</tr>
<tr>
<td>Hispanic or Latino (origin any race)</td>
<td>177</td>
<td>(6.6%)</td>
</tr>
</tbody>
</table>

### Income & Poverty Status 2015

<table>
<thead>
<tr>
<th>Income Status</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median household income</td>
<td>$40,100</td>
<td></td>
</tr>
<tr>
<td>Persons below poverty level</td>
<td>416</td>
<td>(18%)</td>
</tr>
</tbody>
</table>

### Educational Attainment 2015 (persons 25 years & over)

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No high school degree</td>
<td>244</td>
<td>(13.9%)</td>
</tr>
<tr>
<td>High school graduate only</td>
<td>713</td>
<td>(40.7%)</td>
</tr>
<tr>
<td>Some college/associate degree</td>
<td>464</td>
<td>(26.5%)</td>
</tr>
<tr>
<td>Bachelor's or graduate degree</td>
<td>329</td>
<td>(18.6%)</td>
</tr>
<tr>
<td>HIGH SCHOOL DEGREE OR HIGHER</td>
<td>1,750</td>
<td>(65.3%) of total population</td>
</tr>
</tbody>
</table>

### Place of Work 2013 (workers 16 years & over)

<table>
<thead>
<tr>
<th>Place of Work</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worked in Bath</td>
<td>115</td>
<td>(9.9%)</td>
</tr>
<tr>
<td>Worked outside of Bath</td>
<td>1,042</td>
<td>(90.1%)</td>
</tr>
</tbody>
</table>

### Mean of Transportation to Work 2015

<table>
<thead>
<tr>
<th>Mode of Transportation</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driving a vehicle alone</td>
<td>970</td>
</tr>
<tr>
<td>Riding in a carpool</td>
<td>47</td>
</tr>
<tr>
<td>Walking</td>
<td>61</td>
</tr>
<tr>
<td>Using a motorcycle or bicycle</td>
<td>0</td>
</tr>
<tr>
<td>Working from home</td>
<td>4</td>
</tr>
</tbody>
</table>

### Occupation 2015 (employed persons 16 years & over)

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management, business, science, arts</td>
<td>467</td>
<td>(26%)</td>
</tr>
<tr>
<td>Service occupations</td>
<td>443</td>
<td>(24.7%)</td>
</tr>
<tr>
<td>Sales &amp; office</td>
<td>415</td>
<td>(23.1%)</td>
</tr>
<tr>
<td>Natural resources, construction, maintenance</td>
<td>122</td>
<td>(6.8%)</td>
</tr>
<tr>
<td>Production, transportation, material moving</td>
<td>348</td>
<td>(19.4%)</td>
</tr>
<tr>
<td>TOTAL EMPLOYED</td>
<td>1,795</td>
<td>100%</td>
</tr>
</tbody>
</table>

* U.S. Census Bureau Data unless otherwise noted
89% People who commute to work outside of Bath*

407 People who commute between 10-19 minutes to work *

30% Borough roads with a Condition 5 (worst) rating

47 People 16+ who carpool to work*

8.8 miles Borough roads ^^

5 Pedestrian-involved Collisions (2015) ^

970 People 16+ who drive alone to work*

2.9 miles Distance from central Bath to nearest LANta bus stop

106 Reported Vehicle Collisions (2016 average) ^

*American Community Survey Five-Year Estimate, U.S. Census Bureau, 2015 **Lehigh Valley Planning Commission Bath Borough Survey, 2017
$8,572  
Roadwork repairs paid by Borough (2016)

$17.79m  
Amount of 6 future PennDOT Transportation Improvement Projects impacting the Study Area

41%  
2-Vehicle Households*

21  
STOP signs in the study area

79%  
People who want to be connected to the Nor-Bath Trail **

69  
Zero-vehicle households*

56%  
People who own a bicycle

19  
Annual permit parking spaces available

130  
Parking Tickets Issued (2016 average)

*Bath Borough Police Data, 2016  **LVPC WalkLV Sidewalk Inventory Data, 2016
16% People living at poverty level - 4th highest in County*

105 Pre K-8 Students (Sacred Heart Private School 2016/2017 academic year)

510 K-5 Students (George Wolf Elementary School 2016/2017 academic year)

$40.1k Median Household Income*

6.4% People who are of a race other than white*

119 Bath-based students receiving free/reduced lunch (2016/2017 academic year)

35.7 Median Age of Borough Resident*

*American Community Survey Five-Year Estimate, U.S. Census Bureau, 2015
2,680
Overall Population*

67%
Labor Force Participation Rate for People 16+*

93
Registered Businesses (2017 Borough data)

2.58
Avg. People per Household*

7
Nearby Public Parks (Within 1 mile radius of downtown)

27%
People 16+ Work in Educational Services, Health Care + Social Assistance Industry*

18.8%
People with Bachelor’s Degree or Higher (2009-2013 ACS estimate)
PUBLIC SURVEY RESULTS
CONDUCTED FEBRUARY 2017 - 82 RESPONDENTS

Q1. How many people in your household hold a driver's license?
- 2: 60%
- 4+: 15%
- 1: 14%
- 3: 11%

Q2. How many vehicles are owned by your household?
- 2: 48%
- 3: 20%
- 4+: 16%
- 1: 16%

Q3. Does your place of residence have dedicated parking and if so, where?
- YES Parking in front: 49%
- NO: 27%
- YES Parking in rear: 24%

Q4. For residences with dedicated parking, how many spaces are available?
- 3+: 47%
- 2: 27%
- 1: 26%
The purpose of this survey was to understand generally the Borough resident’s relationship with vehicles, their habits of road usage when driving or parking, and to gain awareness of areas of concern based on resident personal experience. Some of the takeaways from the responses are: a high number of households have 3+ vehicles with almost half having 3+ dedicated parking spaces available; more than half of respondents own a bicycle; the majority of respondents would not choose public transit as a travel option were it available. This represents a small sample of the entire Borough however may help generate questions and direct priorities for future planning approaches.

Q5. Do you own a bicycle?
- YES: 56%
- NO: 44%

Q6. If you have children, how do they travel to school?
- SCHOOL BUS: 31%
- THEY ARE GIVEN A RIDE: 11%
- WALK: 6%
- N/A: 52%

Q7. If public transit service was introduced to the borough, would you be likely to use it?
- NO: 73%
- YES: 27%

Most commonly mentioned topics in the ‘additional comments’ response:
- TRUCKS: 17 comments
- PARKING: 13 comments
- VEHICLE VOLUME: 8 comments
- ROAD QUALITY: 7 comments
While the data included on this and the following page reflects findings from 2016 only, there are clear patterns that are worth further investigation. For example, the highest number of crashes happened during the 6-9am and 3-6pm peak travel hours. This reinforces perceptions about when travel is most vulnerable to crashes. The month with the highest crashes was June, leaving room for investigation as to what conditions contribute to this increase and how they might be mitigated.

The data on the following page reveals that most crashes happened at intersections. Some intersections that had multiple incidents could benefit from a safety strategy boost. Additional public data from PennDOT is available which identifies the condition of the road, the weather conditions, or even the lighting level at the time of each crash. This data also reveals that only one ‘heavy truck’ was involved in a reportable collision during 2016 compared to 39 standard cars. This challenges the perception that heavy trucks are predominantly involved with collisions involving injury and may imply that increased signage or reinforcement of driver education might be appropriate solutions.

Source: Pennsylvania Department of Transportation
REPORTABLE CRASHES 2016

- Site of 1 incident
- Site of multiple incidents

Vehicles involved in crashes by type
Source: Pennsylvania Department of Transportation

- 39 cars
- 10 trucks
- 9 motorcycles
- 3 buses
- 1 truck
PLANNING + POLICIES

This section identifies the land uses within the study area as well as current ordinances related to parking. Land use can tell us which locations might have higher vehicle demand than others, whether there is a lack of compliance with current ordinance parking requirements, and whether zoning or ordinance amendments might provide solutions.
Construction of the new municipal office building
This map shows that people travel to and from the Borough for many reasons- as residents, business owners, people seeking various services, etc. Each building is identified by its zoning use category.

The concentration of each use type puts particular demands on the street. Some uses may attract a low frequency of large vehicles that need room to maneuver. Other uses may require higher levels of parking but only at specific times of the day. The location of some uses may make them easier for pedestrians to access than others. Ideally, the road network should support and be appropriate to the land uses which it connects.
Borough Council has long sought to encourage the development and expansion of business activity within its Commercial Zoning districts; and

... has determined that the most profound constraint upon business development in the oldest portions of its commercial districts is a series of off-street parking requirements found in the Borough’s Zoning Ordinance which cannot reasonably be met, due to the density of existing structures in the area; and

...recognizes that the borough is not the only Borough with a densely constructed downtown area plagued with similar issues, and has identified the fact that other communities have lessened downtown parking requirements in acknowledgement of those developmental constraints; and

...now desire to permit the business activity they seek to encourage in the Borough’s core business area to develop and grow without a requirement of providing off-street parking in addition to that which exists...

The Zoning Ordinance of the Borough of Bath is amended as follows:

PARKING OVERLAY DISTRICT: (district areas are identified in yellow and orange in the map on the opposite page)

INTENT OF OVERLAY DISTRICT:
The purpose of the Parking Overlay District is to relax off street parking requirements in the primary historic business portion of the Borough to encourage the growth and development of business activity therein.

OFF-STREET PARKING:
All new uses shall require adequate off street parking, except that additional off street parking for new and expanded business uses in the Parking Overlay District shall not require off street parking beyond that which exists on January 1, 2013.

NEW AND EXISTING USES:
All uses shall meet the off street parking and loading requirements set forth in this section, except that there shall be no off-street parking requirements for non-residential uses lawfully existing as of the date of adoption...and further, that there shall be no additional off-street parking required for new and expanded business uses in the Parking Overlay District beyond that which exists on January 1, 2013.

OFF-STREET PARKING STANDARDS:
Except as otherwise provided in this Ordinance regarding new and expanded business uses within the Parking Overlay Zone, off-street parking shall be provided in accordance with the provisions of this subsection...
The ‘parking overlay district’ (as defined in Ordinance No. 2013-628) permits existing buildings to incorporate a second, ‘mixed use’ (under recently adopted Ordinance No. 2017-674). Parcels benefitting from this ordinance are shaded in color in the map above. New mixed uses could increase downtown activity over a period of time. Considerations should therefore be made for how the road network will accommodate potential businesses/patrons, and support the regular delivery of goods necessary to support new mixed uses.

If fully utilized, increased mixed uses would also aid in offsetting demand of some vehicle trips by promoting a densified and more attractive environment to pedestrians. The parking overlay district is already accessible via a short walk from anywhere in the Borough.

The historic district (amended in April 2017) includes the majority of the areas which are comprised within the parking overlay district. The historic district however, specifically intends to promote educational, cultural and economic opportunities through preservation, protection and regulation of buildings, structures and areas of historic importance. These benefits include stimulation to tourism, improving property values and fostering civic pride.

As the improved character of the Borough helps make a destination for visitors from outside the Borough boundaries, demand for parking and road access in and near the historic district would also be expected to increase.
STREET FEATURES, CHARACTERISTICS + USAGE

This section focuses on identifying the physical characteristics of the road network, including - cartway width, sidewalk connectivity, location of parking spaces, traffic signals, and lighting. Identifying current and projected vehicle volumes is important in highlighting the physical limitations of what the Borough can accommodate. It also paints a picture showing that a parking shortage is more perceived than actual, and helps identify coordinated improvements which can improve the situation.
W. Northampton Street looking toward its intersection with Walnut Street
This is an image of a seven-axle tractor trailer traveling along S. Chestnut Street before making a tight right turn onto Northampton Street, a sight which is not uncommon. The yellow line demonstrates that there is only a margin of a few inches between the wheels of the truck and the line markings of the road, leaving little margin of error for drivers traveling on either side and increasing the need to boost pedestrian safety along the adjacent sidewalks through appropriate interventions.
The image above shows an alley where children often play. The road is typically accessed only by residents at the handful of adjacent properties. The road’s lack of defined edges or markings, and limited visibility for drivers entering from the west side, make it less safe for children.

The image to the left shows the sidewalk view looking south on S. Chestnut Street. The yellow arrows demonstrate that, although the sidewalk may be of sufficient width at its widest points, a series of objects significantly narrow the walkway in several areas, resulting in a route that is not comfortable for all users.
This map shows the variety of ways the Borough road network can be used. It details the direction vehicles travel, how they interact with intersections, and how special vehicles, such as handicap permitted or high weight trucks impact on the usability and efficiency of the road network.
This map shows that streets in the Borough are not ‘one-size-fits-all’. Different road widths and speed limits impact vehicles, affecting the usability and safety of the road. These variations influence not only the comfort level of using a street, but the relationship between particular elements that impact the safety of its users. The image above is a corner street bollard installed to prevent large vehicles from hopping the curbs during tight turns.
This map shows the most recent data available for average number of total vehicles that were measured when passing a specific point along the road.
This map shows the most recent data available for average number of total trucks on particular segments of road.
Using Pennsylvania Department of Transportation’s projected rates of vehicle growth (by county) as a reference, this graphic shows the rough estimate of daily additional vehicles projected to use the borough’s roads between two, 10-year periods and the overall percentage increase from 2017 to 2037. This information would be useful when determining how best to allocate funds for areas along the road network, which in some areas is already in disrepair under current vehicle volumes.
These approved projects can help shape the direction of long-range planning efforts for road works and funding priorities for the Borough.
Street sections display how a road width is segmented to accommodate people or vehicles. Standard vehicle widths are 5'6" while standard widths of tractor trailers are 8'6". These graphics indicate how much 'breathing room' drivers experience on two particular roads in Bath. The sections also reveal that the wording from Bath’s Zoning Ordinance XVII may be outdated or in need of more active enforcement to improve safety on these streets. For example, the ordinance requires that parallel parking spaces be designed with a minimum width of 9'. However, both sample street sections show that the minimum width requirement is not being followed. Consistency should be achieved between what is happening on the road network and the ordinances that dictate how they should be used.
TYPICAL STREET SECTION (W. MAIN STREET)
SPACES FOR VEHICLES

This graphic demonstrates the total number of available on-street parking spaces (study area, only) that were occupied at 6 a.m. on two randomly selected days.

February 2017 - 6 a.m. random parking count sample

May 2017 - 6 a.m. random parking count sample
SPACES FOR VEHICLES
This graphic demonstrates the total number of available on-street parking spaces (study area, only) that were occupied at 12 p.m. on two randomly selected days.

February 2017 - 12 p.m. random parking count sample

May 2017 - 12 p.m. random parking count sample
This graphic demonstrates the total number of available on-street parking spaces (study area, only) that were occupied at 4 p.m. on two randomly selected days.

February 2017 - 4 p.m. random parking count sample

May 2017 - 4 p.m. random parking count sample

255 public (on-street) parking spaces

102 # of public (on-street) parking spaces occupied
40% of potential spaces utilized

100 # of public (on-street) parking spaces occupied
39% of potential spaces utilized
SPACES FOR VEHICLES

This graphic demonstrates the total number of available on-street parking spaces (study area, only) that were occupied at 6 p.m. on two randomly selected days.

February 2017 - 6 p.m. random parking count sample

May 2017 - 6 p.m. random parking count sample
In Bath, off-street parking spaces are often not clearly marked, making it difficult to identify the exact number available in the study area. This graphic however, demonstrates generally the available parking spaces within or immediately adjacent to the study area. The numbers indicated are approximates, only. When read with the land use map, this map gives a rough picture of whether the number of off-street parking spaces comply with the amount required by the Borough’s ordinances. It suggests potential opportunities to gain more parking efficiency by having certain parking areas increase their flexibility to accommodate different users at different times of the day. This solution could offset anomalous occurrences of high parking demand.
Commercial properties at the intersection of North Walnut Street and Main Street
Well-lit streets are not only safer, but more inviting and approachable. Pedestrians and cyclists are naturally drawn to places that deter unsafe activities. Illuminated streets promote safer driving and attracts more people to the street, increasing community vitality.
**SAMPLE SPACING RECOMMENDATION**

1 street light per 150’ (average) staggered on either side of the street

---

**IDEAL LIGHTING**

[Map showing ideal lighting recommendation]

- Lighting Fixture

**HOW FAR APART SHOULD LIGHTS BE SPACED?**

Appropriate spacing of light fixtures is critical to achieving consistent illumination of streets and sidewalks, and to preventing the pedestrian from encountering intervals of darkness. The perception of light is relative to its surroundings, therefore, a poorly lit area will seem so much darker in contrast to a brightly lit area nearby.

A typical Department of Transportation lighting scheme for an average street 40’ in width would have 25’ to 40’ cobra head lights every 125’-150’, staggered on either side of the street. An alternative to this vehicle-oriented scheme is to reduce the height of the fixtures to 13’ and place them every 50’ and on opposite sides of each other.

Although a standard distance between street lights might be specified (say, every 40’ or 50’), make allowances to respond to existing or recommended circumstances, such as a street café, compatibility or conflict with existing traffic signals, benches, bus stops and telephones. More closely spaced lightposts create a stronger edge along the sidewalk, reinforcing the sidewalk itself as an exterior habitable space.

- Project for Public Spaces
A complete, well-maintained sidewalk network is essential for providing pedestrians with uninterrupted routes, and preventing ‘road negotiations’ between pedestrians and drivers. They empower people with limited mobility and promote social contact. The Federal Highway Administration emphasizes, “walking is a social activity. For any two people to walk together, 5.0’ of space is the bare minimum.”

The minimum required width of sidewalks by the FHWA is 5.0’ if set back from the curb or 6.0’ if at the curb face. Many locations along Bath’s sidewalks in the study area do not meet these requirements or are in poor condition.
Although using a vehicle for short destinations is common practice, we often forget just how walkable those distances are. This graphic demonstrates that the majority of the historic and commercial center of Bath can be accessed within a five-minute walk, or that nearly the entire length of the Borough can be crossed on foot within 15-minutes walk (average estimate).

Pedestrian access to destinations within Bath can be greatly enhanced. The borough should consider projects that support the safety, comfort and connectivity of the streets so that walking becomes a preferred method of travel, when possible. This could reduce pressure on downtown parking capacity, support active lifestyles and generate liveliness within the streetscape. Perhaps the key benefit though, is that reduced car use undeniably contributes to a healthier environment.
Pedestrian bridge crossing Monocacy Creek

This is an example of an element in the borough which supports walkability and contributes to increased pedestrian access in the study area.
These are areas in the Borough that should be improved to support a fully walkable and safe pedestrian experience in the study area.

The following is an excerpt of section 154-56 of the Borough’s code - “It shall be the duty and responsibility of the Borough Engineer to determine, in the case of any individual property, whether or not the sidewalk and/or curb shall be reconstructed or repaired, and, if so, the specific part or parts thereof to be reconstructed or repaired.” Section 154-57 states, “Any property owner, upon his own initiative, and without notice from any Borough authority, may construct, reconstruct or repair a sidewalk and/or curb in front of or along his property, provided that such owner shall first make application to the Borough Engineer.”
Analysis reveals that several hurdles must be cleared for the Borough to improve safety and connectivity for multimodal users, increase parking efficiency and prepare for the future. These hurdles include traffic congestion downtown, an unclear plan for identifying available parking and the lack of an overall strategy for helping the borough highlight its historic character while accommodating future growth. Addressing such complex challenges will require a comprehensive strategy that has the full backing of Bath Council and residents.

This section will outline a series of short-term, mid-term and long-term strategies that may be implemented one at a time or in any number of combinations considered most appropriate and feasible by the Borough. These recommendations have been designed following LVPC analysis and concurrent discussions held with Northampton County, PennDOT District 5-0, Bath Borough Council and Borough Manager Bradford Flynn, and residents in attendance at public meetings.
SHORT-TERM STRATEGIES (low-cost, feasible within one year)

1a. Form a steering committee for transportation decisions affecting Borough
This is an essential first step in establishing an inclusive and safe Borough for all users. The committee should include stakeholders such as Northampton County and Northampton Area School District representatives, Bath Business Community Partnership, business owners. It should meet to discuss strategies and responsibilities for implementing recommendations of this report or as determined necessary by the group. The committee should be considered a resource during the development of relevant plans and provide ongoing monitoring of transportation issues.

1b. Design and adopt an Active Transportation plan and local bike strategy/study
This process should seek to identify shortcomings and opportunities in achieving complete connectivity and accessibility of the street network for residents and visitors. The plan should utilize a steering committee to identify specific goals, outline responsibilities, and channel efforts into projects that contribute to a long-term vision. The transportation plan should build on values developed in the Borough’s comprehensive plan while supporting the regional comprehensive plan.

1c. Design and adopt a Complete Streets Policy
This policy approach is nationally recognized and therefore encourages the Borough’s participation in a nationwide commitment to inclusive streets. This policy should supplement, or be integrated into, the comprehensive and active transportation plans. When values supporting complete streets are formally established, chances are increased when trying to secure funding and public/private backing for improvements that would uphold them. The development of a policy is a relatively low-demand task which could also be developed by the steering committee. Some of the top-recognized policies by Smart Growth America are only 2-3 pages in length. Further details on this program and document guidelines can be found at the following link - http://completestreets.org.

1d. Monitor effects following the December 2017 adoption of Ordinance No. 2017-674
In late 2017 Bath Council adopted Ordinance No. 2017-674 which permits a selection of parcels (defined by earlier ordinance No. 2013-628 as the ‘parking overlay district’) the option of introducing a second ‘mixed use’. This would most commonly be implemented as a building with commercial use on the ground level and a residential use above. The parcels to be affected are currently zoned as either: 1) Commercial Neighborhood, or 2) Commercial Highway w/ Residential (see map on p.23). Prior to Ordinance No. 2017-674, the existing uses in the ‘parking overlay district’ were subject to the off-street parking requirements established under Zoning Article XVII. In this article, off-street parking spaces are required based primarily on a system of \( x \) number of spaces per \( x \) sq. ft. of the use total floor area. This is outlined in the chart on the following page. Ordinance No. 2013-628 however, lifts the requirement of new mixed uses in the ‘parking overlay district’ from accommodating additional off-street parking spaces beyond those spaces which had existed as of January 1, 2013.

Without the imposition of Article XVII parking requirements (considered to be atypically high for an urban area), new ‘parking overlay district’ uses can more easily contribute to increasing the local economy in spite of the spatial constraints of the downtown area. This will, in effect, support development and economic growth without placing additional burden on the road network to accommodate more parking spaces.

It is understood that the Borough plans to take a conservative approach in issuing a small selection of permits for new ‘mixed uses’ in the ‘parking overlay district’ in phases. The LVPC supports this approach and recommends periodic monitoring so that both the physical and behavioral effects of Ordinance No. 2017-674 on the road network can inform strategies for further future development.
### EXISTING AND PROPOSED BATH ZONING COMPARISON

<table>
<thead>
<tr>
<th>Existing Zoning Category</th>
<th>New Zoning Overlay</th>
<th>Parking Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial Neighborhood</td>
<td>Mixed Use</td>
<td>Off-street parking - Article XVII</td>
</tr>
<tr>
<td>Permitted Uses</td>
<td>Permitted Uses</td>
<td>Parking Spaces required</td>
</tr>
<tr>
<td>Single-family detached</td>
<td>Single, non-res. use on second floor</td>
<td></td>
</tr>
<tr>
<td>Single-family semi-detached</td>
<td>Single non-res. 1st floor/rel. 2nd floor</td>
<td></td>
</tr>
<tr>
<td>Commercial Highway - w/ Resi.</td>
<td>Mixed use</td>
<td>Off-street parking - Article XVII</td>
</tr>
<tr>
<td>Permitted Uses - w/ Resi.</td>
<td>Permitted Uses</td>
<td>Parking Spaces required</td>
</tr>
<tr>
<td>Residential uses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baked goods (retail)</td>
<td>✓</td>
<td>1 per 150 sq. ft. of floor area</td>
</tr>
<tr>
<td>Flower shops</td>
<td>✓</td>
<td>1 per 150 sq. ft. of floor area</td>
</tr>
<tr>
<td>Child care center</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gift shops</td>
<td>✓</td>
<td>1 per 150 sq. ft. of floor area</td>
</tr>
<tr>
<td>Apparel/jewelry, etc thing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beauty shops</td>
<td>✓</td>
<td>1 per 150 sq. ft. of floor area</td>
</tr>
<tr>
<td>Small appliance sale and repair</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graphic arts printing + repro, shop</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vending machines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Businesses + professional offices</td>
<td>✓</td>
<td>1 per 200 sq. ft. of floor area</td>
</tr>
<tr>
<td>Delis</td>
<td>✓</td>
<td>1 per 150 sq. ft. of floor area</td>
</tr>
<tr>
<td>Meat + poultry markets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household supply store</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dry cleaner + laundromats</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radio and tv stations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Veterinary hospitals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bed and breakfast</td>
<td>✓</td>
<td>1 per unit and 1 per 2 employees</td>
</tr>
<tr>
<td>Grocery/convenience stores</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug stores</td>
<td>✓</td>
<td>1 per 150 sq. ft. of floor area</td>
</tr>
<tr>
<td>Eating/drinking establishment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drive-through restaurant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furniture store</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardware, plumbing store</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank + fiduciary w/ drive-through</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public garages + lots</td>
<td></td>
<td>Customer vehicles + 1 per employee on maximum work shift</td>
</tr>
<tr>
<td>Car wash</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auto service centers + stores</td>
<td></td>
<td></td>
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<tr>
<td>Internal amusement devices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social building</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical + dental clinics</td>
<td>✓</td>
<td>1 per 200 sq. ft. of floor area</td>
</tr>
<tr>
<td>Liquor stores + beer distributors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department or discount stores</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Movie theaters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-rise or high-density apartments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hotels + motels</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automobile sales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retail outlet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supermarkets</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The 'parking overlay district' adopted by the Borough overlays 71 parcels currently zoned for one of two separate uses (see map on p.23) - 'Commercial Neighborhoods' (table above) and 'Commercial Highway with Residential' (table to the right).

Column 1 in each table lists uses currently permitted under a particular zoning category. Column 3 shows the amount of off-street parking spaces as required by Article XVII for each permitted use.

Column 2 identifies which 'mixed uses' are now permitted (by Ordinance No. 2017-674) to be potentially implemented as a second use by the 71 'parking overlay district' parcels. New uses in this column would be exempt from the parking requirements of Column 3, and would utilize only the parking spaces of the Column 1 uses they overlay which had existed as of January 1, 2013.

Source- Bath Borough
SHORT-TERM STRATEGIES (low to moderate cost, feasible within one year)

1e. Coordinate with a Local Technical Assistance Program (LTAP) tech assist
A tech assist is an expert on technical aspects of transportation issues who provides a complimentary service through Pennsylvania Department of Transportation’s Local Technical Assistance Program. While the LVPC readily volunteers involvement in future transportation and planning-related discussions, a tech assist should be utilized as a primary source for specific technical advice relating to safety and/or engineering concerns for planned projects.

1f. Delineate existing parking spaces
On-street parking spaces are currently not fully maximized in high-demand areas, in part because parking space boundaries are sometimes unclear. Clear striping is necessary for all available on-street public parking spaces. This step should ideally be accompanied with the creation of a public borough parking map and improved signage to inform vehicle owners of the location of parking spaces and their conditions for use.

1g. Introduce more paid parking
While the number of parking spaces in the borough has been shown through this study to sufficiently meet demand, paid parking in strategic areas could provide an economic benefit by boosting essential borough funds. It could also dissuade negative parking behavior by residents who abuse the ease of parking on-street for free instead of walking short distances or using private lots. In addition, visitors who pay for parking typically make the most of their visit by staying longer and potentially spending at local businesses.

Paid parking could be implemented through meters, paid hourly lots, or through permits in high-demand areas. The Borough is currently developing new public parking permit areas in select locations to accompany a newly established parking enforcement program. Technology should also be a consideration as some parking apps (like MobileNow) have been successfully implemented in our region. An app aids in advertising available spaces in advance so that less time is spent by drivers on the road searching for ‘the right space’. An option of how parking spaces might be allocated can be referenced on the following page but a strategy should be fully discussed and developed through the previously recommended steering committee. The west side of South Walnut Street, south of Main Street, for example, has 20 available on-street parking spaces which are rarely used due to safety concerns and lack of striping. Installing meters and formalizing these spaces would increase driver confidence in utilizing them and be likely to generate capital because of their proximity to central businesses and services.

1h. Small-scale urban design treatments
The study area currently benefits from historic character established through architectural details but a lack of consistency and maintenance can cause these to be overlooked. A few, small urban design treatments can improve aesthetic appeal and, in effect, make walking a desirable and natural option in the heart of the Borough. Some options might include the addition of benches and planters, or the incorporation of a landmark sign or mural to convey a sense of arrival and pride in the historic district. The overall impact of these improvements is visualized in several renderings starting on page 59.

1i. Generate discussions about pedestrian and cyclist policies for the future Bath comprehensive plan update.
The current Bath Comprehensive Plan dates back to 1978, making certain aspects of the plan severely outdated. It is expected that the comprehensive plan will be updated as soon as possible. While some of the existing policies surrounding transportation topics still ring true, informal discussions should be taking place in the near future for how to plan for and boost policies that will encourage and facilitate multimodalism in the Borough. This will allow for early buy-in from the community and give time for stakeholders to provide expertise and feedback when designing policy changes to be implemented in the next Borough comprehensive plan update.
This map illustrates one of many potential options for how parking in the borough might be designated in order to: 1) generate income; 2) increase parking efficiency and flexibility by encouraging existing parking lots to accommodate different parking needs at different times of the day, and 3) challenge the perception that parking in urban areas should be a free service. Parking spaces do, in fact, bear costs, particularly including those based on environmental impact.
MID-TERM STRATEGIES (some moderately higher cost, feasible from 1-5 years)

2a. Evaluate the impact of new Borough building parking facility
The new location of the borough offices (in construction phase at the time of this document) intends to feature a parking lot with 35+ parking spaces. This is anticipated to offset some of the perceived high parking demand in the study area. It is recommended that following construction completion and a period of normal occupation and building operation, that the effect of the new parking lot be analyzed in comparison to general parking demands in the borough.

2b. Evaluate the impact of police department changes on annual tickets/accidents
Following a decision voted by Bath Council in July 2017, the local police department is anticipated to be replaced with state police service in early 2019. It is recommended that the borough compare the number of monthly and annual parking tickets issued and number of vehicle-related accidents before and after this transition takes place. Analysis may bring attention to areas requiring heavier intervention or enhanced safety measures.

2c. Monitor any changes in traffic demand/delay associated with signal timings ahead of next scheduled analysis by PennDOT
The LVPC recommends that the borough periodically monitor typical traffic conditions at current signalized intersections lights so that any significant changes can be reported to PennDOT prior to their regularly scheduled analysis of the Borough’s signal timings. This is scheduled to take place in approximately three years (2021).

2d. Formal connection of Delaware & Lehigh Trail to Bath
The development of the Delaware & Lehigh (D&L) Trail into Bath has been anticipated for a long time and will be a key component in creating connectivity to areas already benefitting from the trail. Designs for the trail head at Mill Street are currently being engineered and a trail building is anticipated as early as 2018. The LVPC supports this expansion as part of recommendations to increase connectivity for all road users in both Lehigh and Northampton counties. The trail will provide access to recreational opportunities for Bath residents and attract outside visitors to visit Bath as potential patrons of businesses or tourists of its historic attractions. Furthermore, it will provide an economic return on environment. With the finished trail, cyclists leaving Bath could expect to access the surrounding towns as follows:

- **14 minutes** to Borough of Chapman
- **31 minutes** to Borough of Nazareth
- **45 minutes** to Borough of Catasauqua
- **55 minutes** to City of Bethlehem
- **61 minutes** to City of Easton
- **68 minutes** to City of Allentown

2e. Designate truck routes in partnership with PennDOT and the LVPC
If the borough wishes to alter existing designated truck routes as visualized in this document, consultation with PennDOT and the LVPC will be required in order to secure permission and to plan the transition to the new routes.
2f. Mid-scale urban design treatments and speed treatments
The borough features unique historical architecture, but a lack of visual consistency and property maintenance can result in this asset being overlooked. A few mid-scale urban design treatments to the street would magnify the charm of the Borough’s historic identity, while improving the safety of the streets. These may be installed in combination or independently of the recommended small-scale urban design treatments. Some might include an increase in frequency of street lights, repair of sidewalks, and the painting or imprinting of textured pavers at crosswalk locations for higher visibility to drivers approaching from a distance. A sample of these treatments has been visualized and explained in further detail starting on page 59.

Drivers who speed are more likely to cause unnecessary accidents, close calls and damage to property in Bath. Because of reported bottlenecking at signalized intersections during peak travel time, speeding is primarily reported to be observed taking place just beyond the bottlenecks and on residential roads being used to bypass the traffic just adjacent to the study area. The frustrating conditions which periodically cause this driving behavior are due to a variety of reasons and have been addressed throughout this report. It is recommended however, that speed-calming strategies be incorporated throughout the study area to train the driver to appropriately maneuver through the road network. These can take the form of speed tables, pavement bulb-outs, more prominent signage and LED pedestrian crossings as a sample of many methods that can be used to calm traffic in areas most vulnerable to accidents. Visualizations in this report show how some of these may be implemented. If the Borough does wish to implement the strategies, the Lehigh Valley Planning Commission can offer to conduct a speed and delay run both before and after the improvements to establish a baseline of traffic operating conditions. This would need to take place during the school year at both a.m. and p.m. peak travel periods.

LONG-TERM STRATEGIES (some higher cost investment, feasible from 5-10 years)
3a. Convert Mill Street into a designated truck route
Following anticipated work to improve Bridge 115 at the west end of Mill Street, the road will be able to safely support weight loads of freight vehicles, many of which are currently using it as a bypass route, despite its weight restriction. Northampton County owns the bridge and is funding the work expected to begin in 2018. It is recommended that the bridge improvements be accompanied by comprehensive improvements along the rest of Mill Street to enable safe, multimodal access. Improvements would include completed sidewalks along the north and south sides of the street, shared lane markings and increased street lighting. The success of the overall recommendation however, would be conditional upon the installation of signalized intersections with coordinated traffic lights and pedestrian crossings at the street’s east and west ends.

At 40’ wide, Mill Street is the widest road within the study area, making it the most physically desirable option for trucks seeking alternate routes to reach Routes 512 or 248. This option would remove a portion of truck traffic from utilizing South Chestnut, the narrowest road in the study area, and an area prone to congestion at peak travel periods. The intersection of S. Chestnut Street and Northampton Street had the highest number of crashes in 2016. Furthermore, the small turning radii for trucks turning from S. Chestnut Street onto Northampton Street increases the likeliness of property and sidewalk damage to occur.

Ideal scenarios would allow for the widening of roads in the central district to improve the driving conditions for large vehicles. However this is not feasible given the limited or nonexistent setbacks of the fronting properties. The properties along Mill Street benefit from larger setbacks, making it the route of least impact on residences and infrastructure. Essentially, the truck traffic congestion from key downtown intersections would be redirected through a non-central area that could more safely accommodate it.
PennDOT has informally supported the proposal with the caveat that the borough manage maintenance of the bridge. All Mill Street improvements would be required to meet PennDOT standards, thereby elevating the safety level of the street from its current condition.

Without professional engineer analysis, it is estimated that the turning radii at Mill Street’s eastern intersection with S. Walnut Street can sufficiently accommodate trucks without the need to impede on the property at the northwestern corner. The borough has informally confirmed that a nearby property on South Walnut Street, between Mill Street and Main Street, has been offered to the borough for full ownership. Should the development of Mill Street under this proposal reveal potential imposition on the corner property at Mill Street, the Borough could potentially offer space in the new property in exchange.

This overall recommendation is also desirable since the Nor-Bath Trail is already planned for connection to Bath via Mill Street. As such, improvements will increase the safety of cyclists who wish to access Bath via the trail. A rendering of this recommendation can be found on page 63. The recommended truck and vehicle routes of the borough overall can be found on pages 64-65.

3b. Monitor Bridge 248 rerouting effects
In 2019, PennDOT will begin work along West Northampton Street as part of a Bridge 248 rerouting project. The project is designed to make improvements to the bridge so that it is no longer weight-restricted as well as straighten the west end of West Northampton Street so that it flows directly onto West Main Street. This will eliminate an extra turn for tractor trailers using S. Chestnut in order to access Rte 248. Although PennDOT is expected to conduct its own post-project analysis, the Borough should also regularly monitor impacts of the project 3-6 months after completion, and before proceeding with other recommendations in this report that would rely on the overall success of the rerouting.

OTHER CONSIDERATIONS
Future structure opportunity –
The Borough’s anticipated acquisition of a property along South Walnut Street will result in a space with a potential mix of uses. This is an opportunity to coordinate the use of the building with the economic goals of the Borough, or to satisfy other particular community needs. Appropriate parking spaces and multimodal access will need to be planned to accommodate the potential users of that building.

Future structure consideration –
The building which currently houses the Borough offices will soon be vacated following the completion of the new facility on North Walnut Street. The future of the old building is unknown and may accommodate potential uses ranging from new office space to apartments. The use may have additional impact on parking demand and solutions should be considered early on in the planning stage.

Potential informal test programming consideration -
Consideration should be given to closing a portion of a street in the downtown area to vehicle traffic on a test periodic basis (4 Sunday afternoons a year, for example) to facilitate community street events that celebrate Borough history and increase tourism. This will transform the perception of Bath to that of a pedestrian and bicycle-friendly destination, provide opportunity for cross-boundary partnerships to design events, support local business and increase visibility and support of the Borough by potential public and private partners.
OTHER CONSIDERATIONS

Potential temporary built and programming change -
The Borough may wish to experiment with the adoption of a parklet on Main Street. A parklet is essentially a parking space that can temporarily host removable structures, such as benches, tables or planters to enhance street vitality. Since there is virtually no building setback on the north or south sides of Main Street, there is little opportunity for pedestrian engagement with the street. The conversion of one parking space into a parklet would extend a portion of the sidewalk, provide programming opportunities and encourage people to linger. It could be hosted and designed by a variety of organizations or local artists (potentially awarded through a competition), feature pop-up events, or simply provide a space for landscaping treatments to beautify the street. A parklet should be installed in compliance with zoning regulations and with permission from the owner of the road. Some successful examples can be seen below.

Currently, the City of Bethlehem has guidelines and an application for parklets, which may be a useful resource.
The Lehigh Valley Planning Commission policies relevant to and consistent with report recommendations:

Regional Comprehensive Plan (updated 2005)

- Policy (p.72) Planning and design of road improvements should be given careful consideration to potential negative impacts on established neighborhoods and communities.
- Policy (p.71) Give high priority to projects that upgrade unsafe roads and intersections, rehabilitate or replace defunct bridge, and upgrade existing highways that are deficient.
- Policy (p.72) The LVPC will support strategies for transportation management, intelligent transportation systems, access management practices, and context sensitive design in situations consistent with this plan.
- Policy (p.72) Improve sidewalk, trail, and local street connectivity to reduce the number of vehicle trips taken on the major highway network.
- Policy (p.82) Promote transportation infrastructure improvements such as shoulder improvements, sidewalks, and crosswalks to resolve bicycle and pedestrian safety issues. The appropriateness of bicycle facilities should be considered as part of all road projects.
- Policy (p.82) Support the development of regulations in local municipalities that mandate construction of sidewalks and pathways to serve pedestrian and other non-motorized traffic.
- Policy (p.82) Promote the construction of missing links in the bicycle and pedestrian networks.
- Policy (p.82) Support future development patterns conducive to non-motorized travel.
- Policy (p.82) Provide safe, convenient bicycle parking and storage facilities in urban areas.
- Policy (p.82) PENNDOT should adopt bicycle and pedestrian design and performance standards; consideration of pedestrians and bicyclists should be given when designing and locating traffic control devices, signs and crosswalks.
- Policy (p.61) Neighborhoods with substantial amounts of older housing and structures that require upgrading should be revitalized by cooperative efforts of public and private institutions.
- Policy (p.61) Adequate government services should support neighborhood rehabilitation programs. The scattered demolition of unusable units should be undertaken where appropriate to provide a decent living environment.

MoveLV Long Range Transportation Plan (2015)

Goal 2 (p.94) Provide a safe, well-maintained road network that facilitates the movement of traffic.
Goal 3 (p.96) Improve mobility and to provide access to major traffic generators.
Goal 4 (p.98) Promote economy and efficiency in highway, road and right-of-way planning, design and function.
Goal 5 (p.100) Construct transportation improvements that are compatible with the built and natural environments.
Goal 14 (p.118) Support bicycle and pedestrian activity and to provide safe access to the transportation system for cyclists and pedestrians in the Lehigh Valley.
- Policy: Promote transportation improvement projects, such as road diets, shoulder improvements, sidewalks and crosswalks, to resolve bicycle and pedestrian safety issues. Appropriateness of bicycle and pedestrian facilities should be considered as part of all road projects.
- Policy: Encourage specialized bicycle and pedestrian design techniques to facilitate convenient access to transit in areas recommended for urban development.
- Policy: Support municipal regulations that mandate construction of sidewalks and pathways to serve pedestrian and other non-motorized traffic.
- Policy: Support the construction of rails-to-trails projects for use in both recreation and transportation.
- Policy: Promote the construction of missing links in the bicycle and pedestrian networks.
- Policy: Support the future development patterns conducive to non-motorized travel.
- Policy: Promote bicycle sharing where appropriate and provide safe, convenient bicycle parking and storage facilities in key areas.
- Policy: PennDOT should adopt bicycle and pedestrian design and performance standards. Consideration of pedestrians and bicyclists should be given when designing and locating traffic control devices, signs and crosswalks.
- Policy: Support the creation and maintenance of citizen traffic advisory committees to monitor and advocate for multimodalism.
Urban Design Proposal 1 (South Chestnut Street)

This ‘before’ image shows the condition of South Chestnut Street upon entering from West Main Street. Parallel parking is permitted on the east side of the street, however without striped spaces, vehicles aren’t able to make the most of the street length. The sidewalks experience narrowing in many places, forcing pedestrians to navigate around various obstructions. The street is particularly dark at night and could greatly benefit from additional lighting. Because the front of most buildings extend almost directly to the sidewalk, and the cartway width is relatively narrow, the driving experience can feel constrictive for two lanes of traffic. South Chestnut Street is at the heart of the historic district and features attractive architectural details, yet lacks a strong theme of thoughtful urban design details that could make it truly stand out. Finally, the street provides a low comfort level for pedestrians, making it a place to pass through only out of necessity instead of as a desirable destination. Some of the ways these challenges can be overcome are explained and illustrated on the following page.
• A striped pedestrian crossing with flashing sign increases driver awareness and pedestrian access and confidence.
• Clearly striped parking spaces maximize street space while paid meters disincentivize parking in a high-demand location.
• Shared land markings visibly convey that cyclists are welcome to use the street.
• A previously non-descript blank wall has the opportunity to feature local artists or reiterate the sense of arrival in the historic district.
• Additional street lights increase night illumination and safe driving and walking conditions.
Urban Design Proposal 2 (intersection of West Main Street + South Chestnut)

This ‘before’ image reveals an unusually wide turning radius for left-turning vehicles onto South Chestnut Street (on the left). Without signals or distinct sign elements to control the intersection, drivers are prone to maintain or increase acceleration at this turn. This increases the likeliness of unsafe interactions to occur. The unusual arrangement of stops vs. free-flowing traffic often causes confusion for drivers about when it is safe to continue driving west on Main Street and limits the confidence for pedestrians trying to determine when it is their turn. The pedestrian crossing lines are faded, reducing driver awareness that pedestrians have a right to cross at these areas. Parking space lines are also fading away on both streets, potentially reducing the usable parking space. South Chestnut Street is particularly dark in the evening. This creates unsafe conditions with various fixtures interrupting sidewalk flow, and discourages people from interacting comfortably with the street at different times of the day. The existing trees and historic light fixtures along West Main Street make the area feel welcoming however this charm isn’t extended to South Chestnut Street and causes a lack of visual cohesion of “place”.

Some of the ways these challenges can be improved are explained and illustrated on the following page. Through a combination of improvements, the urban design proposal addresses issues of speeding, parking, pedestrian safety and place-making. These may be implemented incrementally over time.
- The extension + widening of South Chestnut Street’s western sidewalk better accommodates uninterrupted walking.
- Clear pavement markings mean that, even from a distance, drivers understand how to interact with the upcoming intersection.
- A gateway sign shows a sense of arrival to the borough and emphasizes local pride in Bath’s history.
- Clearly striped parking spaces maximize on-street space and paid meters disincentivize parking in a high-demand area.
- Seating options encourage people to use the street comfortably and to take their time.
- Additional street lights better illuminate the area at night and increase safety for drivers and pedestrians.
- Small, relatively low-maintenance landscaping treatments create a sense of warmth and welcoming.
- The addition of a historic sign marker clearly identify points of interest for visitors and residents.
- A blinking red or yellow light forces drivers to slow down and creates more controlled vehicle flow from both directions.
Urban Design Proposal 3 (Mill Street)

This ‘before’ image shows the condition of Mill Street looking east towards its intersection with South Walnut Street. It is a relatively wide road with significant set-backs from the surrounding buildings. Combining this with a lack of street markings, drivers are prone to speeding through. In spite of the west end of Mill Street featuring a weight-restricted bridge, freight vehicles often utilize the street in order to bypass heavy traffic at the Main Street and South Chestnut Street intersections. The current sidewalks only accommodate pedestrians at the east end of the street. People who will enter or exit the Borough from the future D&L Trail head on the west end would find the walk uncomfortable. The most prominent building along this street is a home for elderly residents. Those who cross the street to the grocery store must do so without the safety reassurance of a formal pedestrian crossing.

Some of the ways these challenges can be improved are explained and illustrated on the following page. The visualization demonstrates a combination of strategies for improving the overall atmosphere and streetscape of this important connecting road in southern Bath.
• The extension of sidewalks on both sides of the street encourage pedestrians to access the street as part of a variety of possible routes.
• Embedded LED lights and a flashing pedestrian sign at the crosswalk increase driver alertness.
• A slight bump out and clearly posted speed limit sign signal drivers to pass through with more caution.
• Shared lane markings promote the usage of the street by cyclists and increase driver awareness.
• Additional street lights better illuminate the area at night and increase safety levels for both drivers and pedestrians.
• A historic light fixture and sign posting directs trail users and drivers toward historic sites or points of interest.
This proposal is based on recommendation 3c and the conditions for its implementation as outlined.
This proposal is based on recommendation 3c and the conditions for its implementation as outlined.
## RECOMMENDATION SUMMARY TABLE

<table>
<thead>
<tr>
<th>Scale</th>
<th>#</th>
<th>Implementation Strategy</th>
<th>Potential benefits</th>
<th>Cost</th>
<th>Potential funding sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-term 0-1 year</td>
<td>1a</td>
<td>Formation of transportation steering committee.</td>
<td>Establish long-term strategies and partnerships for implementing recommendations, enforcing ordinances relating to safety, sidewalks, streets and parking.</td>
<td>$</td>
<td>Borough</td>
</tr>
<tr>
<td></td>
<td>1b</td>
<td>Design and adopt Complete Streets Policy in the comprehensive plan update, reinforce through zoning ordinance, street code amendments.</td>
<td>Establish commitment to national movement. Secure a foundation of values to inform future changes affecting the transportation network; incorporate or enhance ordinances which are relevant to multimodalism.</td>
<td>$</td>
<td>Borough</td>
</tr>
<tr>
<td></td>
<td>1c</td>
<td>Design and adopt an Active Transportation Plan, and local bike strategy and study.</td>
<td>Align the long-term goals of the borough with regional planning efforts.</td>
<td>$</td>
<td>Borough</td>
</tr>
<tr>
<td></td>
<td>1d</td>
<td>Monitor effects of Ordinance No. 2017-674</td>
<td>Identify the economic effectiveness and road network impact of new, mixed uses adopted by ‘parking overlay district’ parcels under this ordinance.</td>
<td>$</td>
<td>Borough</td>
</tr>
<tr>
<td></td>
<td>1e</td>
<td>Coordinate with LTAP tech assist for complimentary project advice.</td>
<td>Secure technical advice for safety and engineering concerns for future transportation-related projects.</td>
<td>$</td>
<td>LTAP, LVPC</td>
</tr>
<tr>
<td></td>
<td>1f</td>
<td>Delineation of existing on-street parking spaces.</td>
<td>Easier identification of where is appropriate to park.</td>
<td>$</td>
<td>Borough, PennDOT (permitting, engineering)</td>
</tr>
<tr>
<td></td>
<td>1g</td>
<td>Introduce more paid parking.</td>
<td>Generate capital for borough, dis-incentivize use of vehicles for short, local trips, utilizing parking technologies like the MobileNow app. Increase efficiency of overall parking space usage.</td>
<td>$</td>
<td>Borough, Northampton County</td>
</tr>
<tr>
<td></td>
<td>1h</td>
<td>Small-scale urban design strategies.</td>
<td>Improve placemaking by enhancing the charm and usability of streets for pedestrians (installation of benches, planters, increased lighting, incorporation of new signage or murals, design of ‘placemaking pockets’).</td>
<td>$</td>
<td>Borough, local community interest groups, schools, KCP</td>
</tr>
<tr>
<td></td>
<td>1i</td>
<td>Generate discussions on policy amendments to Bath comprehensive plan.</td>
<td>Secure stakeholder expertise and early community buy-in for necessary boost to multimodal policies for a future borough comprehensive plan update.</td>
<td>$</td>
<td>Borough</td>
</tr>
<tr>
<td>Mid-term 1-5 years</td>
<td>2a</td>
<td>Evaluation of new borough building parking lot effectiveness.</td>
<td>Identify whether the new parking lot has aided in offsetting downtown parking pressure.</td>
<td>$</td>
<td>Borough</td>
</tr>
<tr>
<td></td>
<td>2b</td>
<td>Evaluation of impact of police department changes on annual tickets/collisions.</td>
<td>Identify impacts of 2019 police agency transferal on the occurrence of parking and speeding tickets issued, and the number and location of vehicle collisions. Carry out a strategy of police checkpoint days to identify vulnerable areas needing reinforcement.</td>
<td>$</td>
<td>Borough, Police Agency</td>
</tr>
<tr>
<td></td>
<td>2c</td>
<td>Monitor trends and changes in traffic demand associated with signal timings.</td>
<td>Identify whether timings are appropriate (prior to the next scheduled PennDOT analysis) with current volumes and left turns at peak periods so that adjustments can be recommended to PennDOT based on long-term observation and analysis.</td>
<td>$</td>
<td>Green Light Go, ARLE</td>
</tr>
<tr>
<td>2d.</td>
<td>Formal connection of D&amp;L Trail to Bath through Mill Street trailhead.</td>
<td>Attract more visitors through cycling or walking and increase regional connectivity.</td>
<td>$$</td>
<td>DCNR Community Grants and Community Conservation</td>
<td></td>
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<tr>
<td>2e.</td>
<td>Designate truck routes in partnership with the LVPC and PennDOT.</td>
<td>Establish clarity for drivers, reduce property damage, improve safety in vulnerable areas which are being used as informal bypass routes.</td>
<td>$$</td>
<td>PennDOT, LVPC,</td>
<td></td>
</tr>
<tr>
<td>2f.</td>
<td>Mid-scale urban design and speed treatment strategies to S. Chestnut Street.</td>
<td>Increase visibility for drivers, safety for pedestrians/cyclists through elements like new crosswalk markings and increased lighting, speed tables where relevant, etc. Install a gateway sign to the historic district to strengthen identity, design &quot;placemaking pockets&quot; to encourage walkability and informal programming.</td>
<td>$$$</td>
<td>TASA, CDBG, ARLE, KCP</td>
<td></td>
</tr>
<tr>
<td>Long-term 5-10 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3a.</td>
<td>Convert Mill Street to truck route alternative, improvement of Bridge 115 and incorporation of pedestrian improvements.</td>
<td>Ease pressure of large vehicle volume on historic district. Facilitate safe passage of large vehicles, cyclists and pedestrians, enhance connectivity with D&amp;L Trail, encourage active lifestyles.</td>
<td>$$$</td>
<td>Multimodal Transportation Fund, ARLE, FTA</td>
<td></td>
</tr>
<tr>
<td>3b.</td>
<td>Monitor Bridge 248 re-routing effects following PennDOT work.</td>
<td>Identify whether speeds, turning damage has been reduced for large vehicles through road adjustment.</td>
<td>$</td>
<td>Borough</td>
<td></td>
</tr>
</tbody>
</table>

**Funding Partner + Program Websites**

(ARLE) Automated Red Light Enforcement Program - dot.state.pa.us
(CDBG) Community Development Block Grant - dced.pa.gov
Complete Streets - smartgrowthamerica.org
(DCNR) PA Department of Conservation and Natural Resources - dcnr.pa.gov
(FTA) Federal Transit Administration - transit.dot.gov
Green Light-Go Program - dot.state.pa.us
(KCP) Keystone Communities Program - dced.pa.gov
(LTAP) PennDOT Local Technical Assistance Program - dot7.state.pa.us
(LVPC) Lehigh Valley Planning Commission - lvpc.org
Mobile Now - mobile-now.us
Multimodal Transportation Fund - dced.pa.gov
Northampton County - northamptoncounty.org
(PennDOT) Pennsylvania Department of Transportation - penndot.gov
(TASA) Transportation Alternatives Set Aside Program - penndot.gov
(USDOT) U.S. Department of Transportation - transportation.gov

$ - low cost
$$ - moderate cost
$$$ - higher cost
PLACEMAKING

The goal of this section is to briefly demonstrate how small urban design tactics called ‘placemaking’ could contribute value to the street experience in the study area, while supporting the three goals set out in the Bath project.

Placemaking influences the physical and the social space, economic values and qualitative experiences. The interaction between these are represented by the diagram on the opposite page. While the emphasis of the Bath study is the road network (the blue ‘access and linkages’ quadrant), there is clear crossover into the other three topics. Placemaking turns streets, buildings and spaces into engaging, lively communities and neighborhoods.

Placemaking can be initiated in different stages, scales or implemented by a wide variety of groups that could include local government officials, religious groups, schools or residents.

The following pages will consider three micro-locations and how a combination of elements from the placemaking wheel might convert them from spaces into places.
WHAT MAKES A GREAT PLACE?

Image Source: Project for Public Spaces
Placemaking Pocket 2 - Play Place

This pocket is an underused and unsightly alley (driveway), connecting South Chestnut Street to South Walnut Street. It is primarily used by a handful of residents whose vehicles are parked at the rear. With only one alley entrance utilized to serve the residents, this scenario envisions placemaking tactics for the opposite end.
This rendering demonstrates how simple it can be to convert a small, in-between place into a special and more playful place. In this scenario, a driveway portion is converted to an informal play area that includes a chess board painted onto the ground, a hopscotch game and a chalkboard for drawing. The place could encourage natural social interaction and engage a wide variety of people - parents with children, teenage friends and elderly couples. This image also demonstrates how the street might change or increase in vitality with the addition of new businesses through amendments to the current zoning. Only a few minor improvements have been made to the building on the right, freshening up the facade with new paint, a new awning and an eye-catching sign. In combination, these two changes significantly increase the street’s appeal.
Placemaking Pocket 3 - Community Garden

This visualization is used to spark ideas by demonstrating how a flexible space might be designed to echo programming that is already successfully operating in the borough (at the time of this report’s publication, this particular space had been converted to another use). The weekly Bath Farmer’s Market has drawn a strong crowd for 10 years, showing that people have great interest in supporting local farming and produce. The installation of a small, centrally-located community garden could expand on this by providing an informal place to educate and collaborate through growing a selection of flowers, vegetables and herbs. This idea could be adapted to a variety of locations and sizes and could be maintained by a partnership between community groups.

This visualization demonstrates an opportunity designed to echo programming that is already successfully operating in the borough. The weekly Bath Farmer’s Market has drawn a strong crowd for 10 years, showing that people have great interest in supporting local farming and produce. The installation of a small, centrally located community garden can expand on this by providing an informal place to educate or a place for people to collaborate by growing flowers, vegetables and herbs. Although the space is small, it makes a strong statement by reinforcing a local value and contributes to beautification of the street.
Placemaking Pocket 4 - Little Library

This visualization demonstrates that even the smallest spaces can participate in the revitalization of the street. This particular space isn’t quite wide enough for comfortable human passage but could accommodate a tiny library stopping point. Libraries similar to this have been successfully installed in communities worldwide, offering a small place for any member of the public to either leave a book or take a book. As Bath doesn’t benefit from its own public library, this option could help generate excitement about reading and could be sponsored by local schools or students. The particular design in this visualization plays on the English heritage which inspired the borough’s name.
Placemaking Pocket 3 - Tiny Stage

This pocket is an unused right-of-way between two properties. The ‘One Way Do Not Enter’ sign is targeted to vehicles, leaving an unsightly margin of space between two historic properties with attractive features. If this pocket acts as a comma in the full sentence of the street, a more pleasant visual pause for pedestrians could be imagined.
This visualization demonstrates an opportunity for informal programming through small, inexpensive methods that engage the senses of passersby. A simple pallet stage could be placed between the buildings to give local musicians, poets, performers a miniature performing space. These could take the form of impromptu, open mic or regularly scheduled performances (10-minute Sunday night skits, for example). This interaction is layered on the street experience through the addition of sound and could be a charming, quirky attraction.

This also imagines how new businesses could create aesthetic appeal while working in tandem with informal places. Again, just a few minor changes like an eye-catching door color, flower boxes, or bold signage make a world of difference, while playing on existing architectural details.
This graphic indicates the primary facade colors of buildings located in the core of the historic district. By taking consideration of features that contribute to the aesthetic character of the borough’s architecture, appropriate and complementary designs can be developed to improve the character and consistency of the overall streetscape.
ARCHITECTURAL STYLES

The historic district of Bath features a variety of architectural details, reflecting both character and distinct heritage. A sample of residential properties in this area has been illustrated below. Since the highest volume of traffic routes pass through the historic district, there is opportunity to create cohesion between the built fabric, the streets and the interaction opportunities with their users. Through strategic incorporation of visual features and designed road improvements, the streets can become more than the means toward a destination, but a destination in themselves, complementing local architecture, enhancing safety and increasing active lifestyles with multimodal options.
The analysis and recommendations laid out in the Bath Parking + Multimodal Safety Analysis project reveal the following key takeaways:

1) While a series of physical challenges are present with the Borough downtown, there is also great opportunity for partnerships to implement realistic strategies that can make the business district a more attractive, inviting and safer place for road users of all modes.

2) Perceptions regarding the parking situation and traffic impacts in the borough don’t entirely line up with the reality revealed in the LVPC’s analysis. This presents an education opportunity by publicly presenting the data from study, making a commitment to gathering and sharing future data, and considering the design and implementation of context-specific solutions either offered in this report or developed by the Borough.

3) Planning for the growth of the Borough through appropriate zoning and urban design improvements can greatly contribute to revitalization of the historic district of Bath. Boosting the Borough's economy and overall visibility can create a greater connection to neighboring communities, opening the door to collaboration on shared road improvement projects or future funding opportunities.

The Lehigh Valley Planning Commission looks forward to engaging with the Borough in an advisory manner with regard to the topics analyzed in this project.
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DATA SOURCES

Bath Borough
Bath Business Community Partnership
George Wolf Elementary School
Lehigh Valley Planning Commission
Northampton Area School District
Northampton County
Pennsylvania Department of Transportation District 5
Project for Public Spaces