

BATH MULTIMODAL SAFETY + PARKING ANALYSIS



PHASE I SUMMARY - MAY 2017





Brad Flynn, Bath Borough Manager
Bath Borough Council



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Looking east through Monocacy Creek Park

EXECUTIVE SUMMARY

This project was initiated based on a pressing local perception regarding A shortage of parking spaces for Bath Borough residents. The Lehigh Valley Planning Commission agreed to dedicate 12 months to a 'Bath Multimodal Safety + Parking Analysis', which is to be divided into two phases.

During Phase I, the Lehigh Valley Planning Commission held meetings with Bath Borough management and Pennsylvania Department Of Transportation District 5, presented to Bath Council, followed by a public survey, and conducted in-depth research regarding the existing situation of a roughly 1-square mile 'study area' centered on the Borough's downtown. This document presents the results of the analysis in Phase I through representations of data gathered in relation to various elements comprising the physical road network as well as statistics regarding the patterns of its usage and a general profile of the Borough and its users.

The study reveals several layers of potential influence, not just on parking capacity, but on the efficiency of the Borough's overall transportation network and, consequently, the safety of current and future users who wish to use it through a variety of modes.

Phase 2 of the project will be dedicated to the development of realistic and implementable strategies or interventions that will aim to achieve three key goals which have been determined as particularly relevant in the context of the Borough and are identified as follows:

SAFETY FOR ALL USERS (including pedestrians, cyclists and drivers)

ADEQUATE PARKING + CONNECTIVITY FOR ALL USERS (whether residents, commuters through the Borough, businesses, students, etc.)

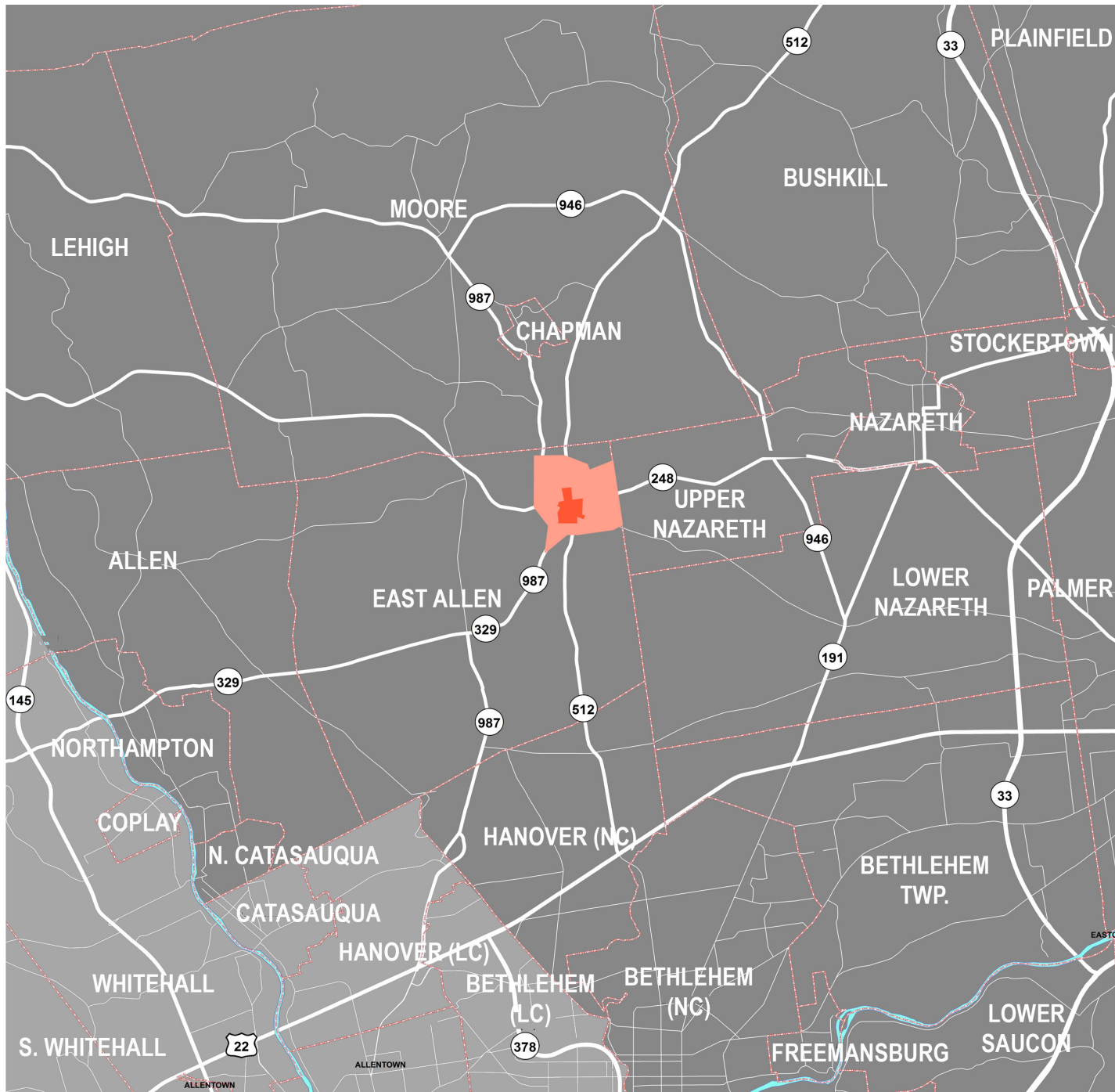
PREPARATION FOR FUTURE GROWTH OF THE BOROUGH (including the anticipated growth of vehicle traffic in the coming decades, new businesses that may be attracted through mixed use zoning, and growth due to connectivity of the Nor-Bath trail network)

These goals are in line with Lehigh Valley Planning Commission policies related to multimodalism, safety, mobility, access and connectivity.

LOCATION



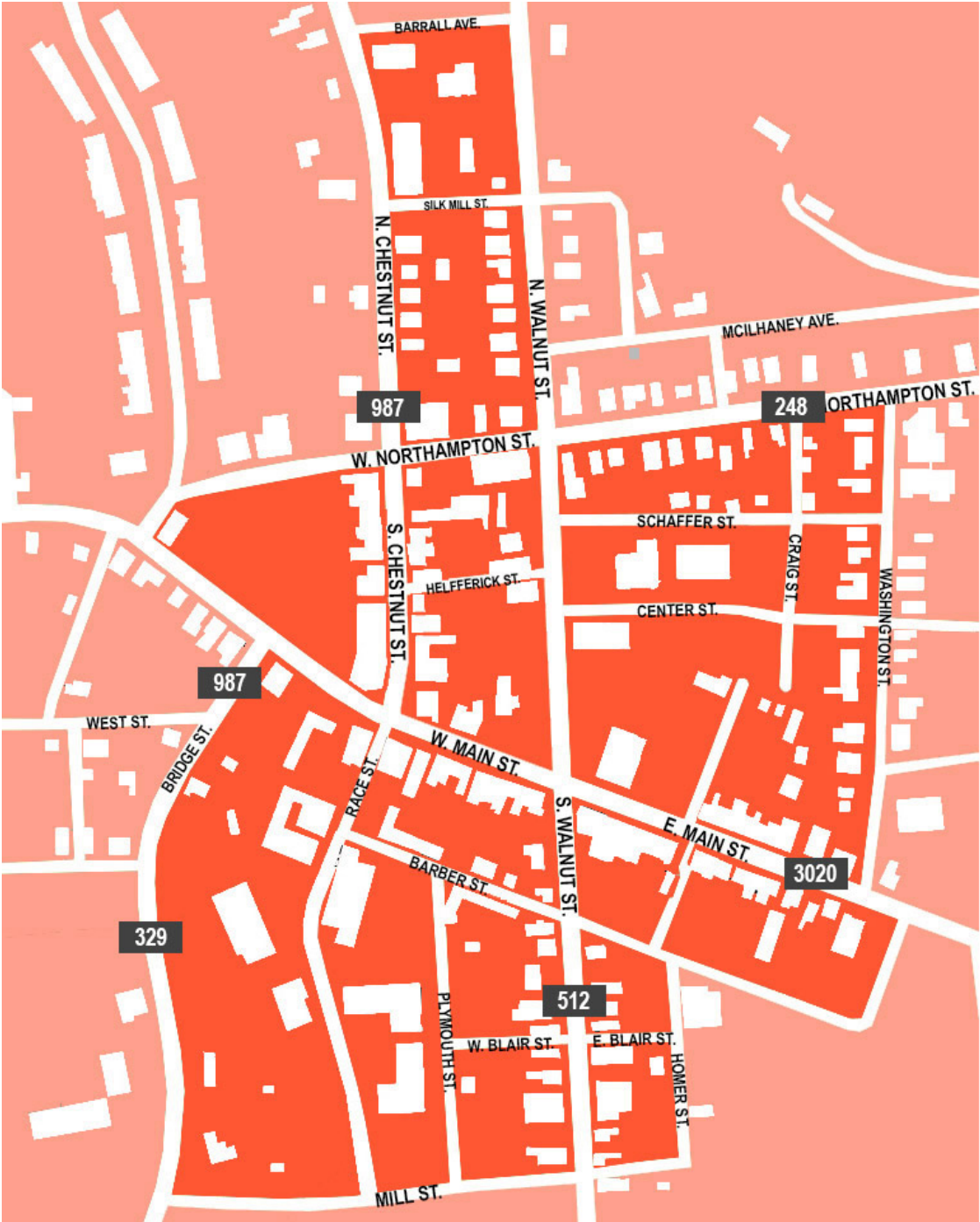
REGIONAL LOCATION



- Northampton County
- Lehigh County
- Bath Borough Boundary
- Study Area

STUDY AREA

State Route Number



BOROUGH PROFILE



Looking south at Route 512 from Northampton 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: 0.90 sq. mi.

Population Density 2015: 2,977 persons/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	<u>11.76</u>
TOTAL	78.00

Population

1960 census	1,736
1970 census	1,829
1980 census	1,953
1990 census	2,358
2000 census	2,678
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

22nd
by number
of units

Age Data 2015

Median Age	35.7	
Under 18 years	594	(22.2%)
65 years and over	439	(16.4%)

Gender Data 2015

Male	1,212	(45.2%)
Female	1,468	(54.8%)

Selected Race & Hispanic Origin Characteristics 2015

White	2,422	(90.3%)
Black or African American	167	(6.2%)
American Indian, Alaska Native	0	
Asian	5	(0.2%)
All Others	87	(3.3%)
Hispanic or Latino (origin any Race)	177	(6.6%)

Income & Poverty Status 2015

Median household income	\$40,100	
Persons below poverty level	416	(16%)

Educational Attainment 2015 (persons 25 years & over)

No high school degree	244	(13.9%)
High school graduate only	713	(40.7%)
Some college/associate degree	464	(26.5%)
Bachelor's or graduate degree	<u>329</u>	<u>(18.8%)</u>
HIGH SCHOOL DEGREE OR HIGHER	1,750	(65.3% of total populatio

Place of Work 2013 (workers 16 years & over)

Worked in Bath	115	(9.9%)
Worked outside of Bath	1,042	(90.1%)

Mean of Transportation to Work 2015

Driving a vehicle alone	970
Riding in a carpool	47
Walking	61
Using a motorcycle or bicycle	0
Working from home	4

Occupation 2015 (employed persons 16 years & over)

Management, business, science, arts	467	(26%)
Service occupations	443	(24.7%)
Sales & office	415	(23.1%)
Natural resources, construction, maintenance	122	(6.8%)
Production, transportation, material moving	<u>348</u>	<u>(19.4%)</u>
TOTAL EMPLOYED	1,795	100%

COUNTY RANK

4th
highest by
percentage



* U.S. Census Bureau Data unless otherwise noted

GETTING AROUND + CONNECTIVITY

89%

People who commute to work outside of Bath*

47

People 16+ who carpool to work*

970

People 16+ who drive alone to work*

407

People who commute between 10-19 minutes to work*

8.8miles

Borough roads

2.9 miles

Distance from central Bath to nearest LANta bus stop

30%

Borough roads with a Condition 5 (worst) rating

5

Pedestrian-involved Collisions (2015)

106

Reported Vehicle Collisions (2016 average)

\$8,572

Roadwork repairs paid
by Borough (2016)

\$17.79m

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

21

STOP signs
in the study
area

41%

2-Vehicle Households*

69

Zero-vehicle
households*

56%

People who own
a bicycle

79%

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

19

Annual permit parking
spaces available

130

Parking Tickets Issued
(2016 average)

THE PEOPLE PROFILE

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*

119

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

6.4%

People who are of a race
other than white*

35.7

Median Age of
Borough Resident*

2,680

Overall Population*

2.58

Avg. People per Household*

67%

Labor Force Participation
Rate for People 16+*

93

Registered
Businesses
(2017 Borough data)

7

Nearby Public Parks
(Within 1 mile radius of downtown)

27%

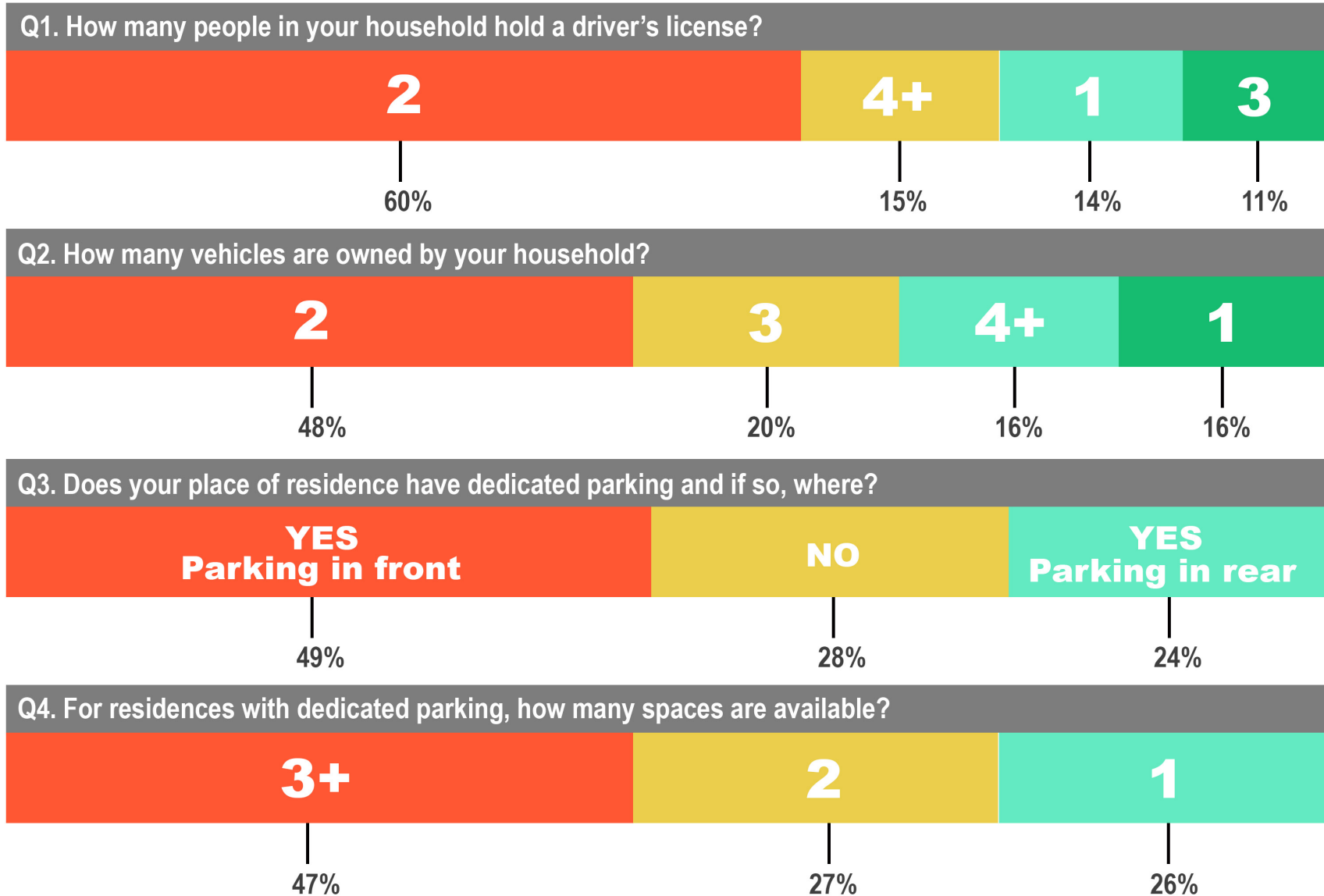
People 16+ Work in Educational Services,
Health Care + Social Assistance Industry*

18.8%

People with Bachelor's
Degree or Higher
(2009-2013 ACS estimate)

PUBLIC SURVEY RESULTS

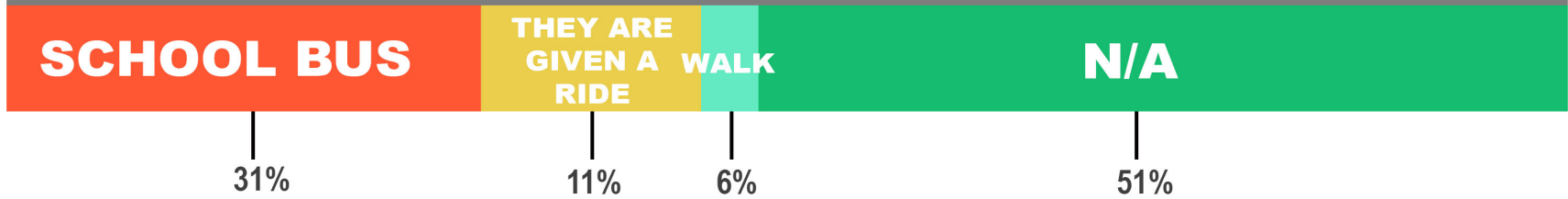
CONDUCTED FEBRUARY 2017 - 82 RESPONDENTS



Q5. Do you own a bicycle?



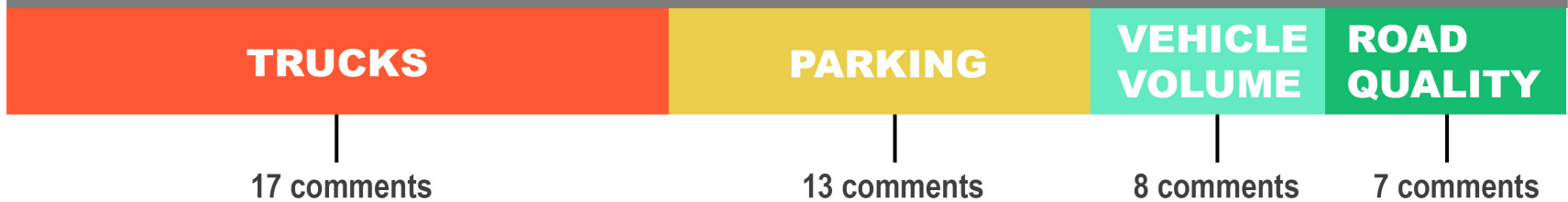
Q6. If you have children, how do they travel to school?



Q7. If public transit service was introduced to the borough, would you be likely to use it?



Most commonly mentioned topics in the 'additional comments' response



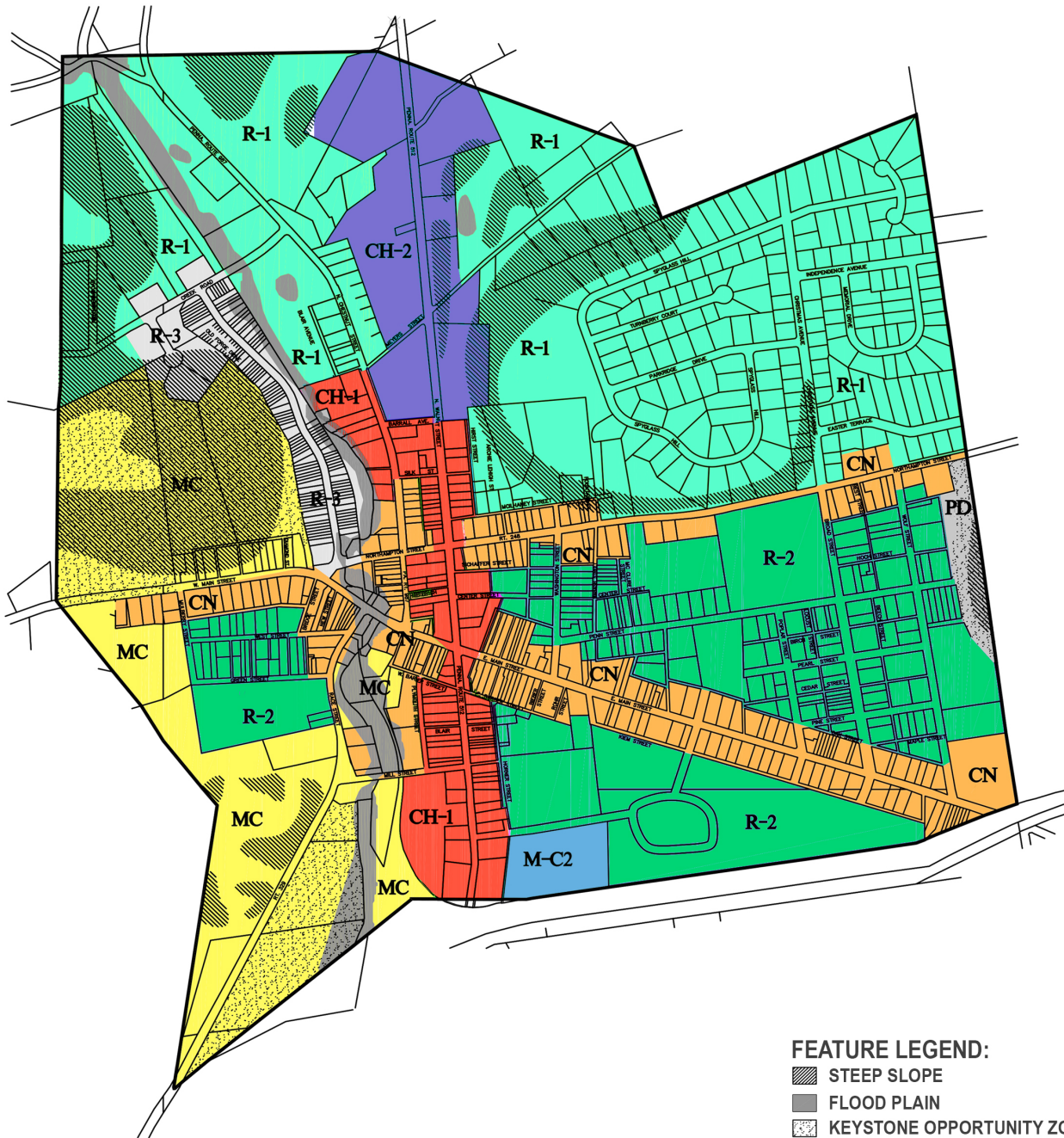
PLANNING + POLICIES



Looking north on Route 987 from the Nor-Bath trail head entrance.

ZONING MAP

Adopted 2009



ZONING DISTRICTS:

- R-1 LOW DENSITY RESIDENTIAL
- R-2 MEDIUM DENSITY RESIDENTIAL
- R-3 HIGH DENSITY RESIDENTIAL
- CN COMMERCIAL NEIGHBORHOOD
- CH-1 COMMERCIAL HIGHWAY W/ RESIDENTIAL
- CH-2 COMMERCIAL HIGHWAY W/O RESIDENTIAL
- MC MANUFACTURING COMMERCIAL
- M-C2 LIGHT MANUFACTURING COMMERCIAL
- PD2 PRESERVATION DISTRICT

FEATURE LEGEND:

- STEEP SLOPE
- FLOOD PLAIN
- KEYSTONE OPPORTUNITY ZONE



LAND USE

- Residential (Based on electric meter count)
- Commercial
- Mixed-Use
- Public/Quasi Public
- Vacant
- No Data

Population Density (Census Tract)

- 4.46 people per acre
- 4.85 people per acre

This map shows that people travel to and from the heart of the Borough for a variety of reasons, as residents, business owners, people seeking various services, etc. The map shows each building as identified by its use (zoning) category and where particular uses are found to cluster.

The concentration of each use type requires particular demands of the street. Some use types may attract a low frequency of large vehicles that need room to maneuver. Other use types may require higher levels of parking but only at specific times of the day. The location of some uses may be easier for pedestrians to access than others. Ideally, the road network should support and be appropriate to the land uses which it connects.

BATH BOROUGH ZONING HIGHLIGHTS

ZONING ARTICLE XVII

Adequate off-street parking spaces and loading areas shall be provided for all new construction and uses.

All nonparallel parking spaces shall be at least nine (9) feet wide and eighteen (18) feet long, exclusive of aisle space. All parallel parking spaces shall be at least twenty-two (22) feet long and nine (9) feet wide. Uses attracting large vehicles shall provide proportionately larger spaces.

Off-street parking shall be provided in accordance with the provisions of this subsection:

- **ATTACHED DWELLINGS:** two and one half (2 1/2) spaces for each family or dwelling unit.
MULTI-FAMILY DWELLINGS + GARDEN APARTMENTS: two and one half (2 1/2) spaces for each family or dwelling unit.
- **PARKING GARAGES,** in addition to that provided for customers' vehicles: one (1) space for each employee on the maximum work shift.
- **PLACES OF PUBLIC ASSEMBLY** not having fixed seating: one (1) space for every six (6) persons who may legally be admitted therein at one time under the state fire prevention laws.
- **PUBLIC BUILDINGS:** one (1) space for each two hundred (200) sq. feet of total floor area.
- **RESTAURANTS** (indoor service or drive-in), Taverns and Nightclubs: one (1) space for each three (3) seats permitted and one (1) space for every two (2) full time employees.
- **RETAIL STORES, GROUP STORES, AND SHOPS:** one (1) space for each one hundred fifty (150) sq. feet of floor area.
- **SCHOOLS:** one (1) space for each three and one half (3.5) seats in the auditorium or one (1) space for each seventeen (17) classroom seats, whichever is greater, one (1) space for each employee and adequate space for buses and deliveries.

PROPOSED PARKING OVERLAY DISTRICT



This zoning amendment proposed by Bath Borough would encourage more mixed-uses to concentrate in the downtown area with the intent of potentially increasing and densifying commercial activity.

HISTORIC DISTRICT



This district (amended in April 2017) intends to promote educational, cultural and economic opportunities through preservation, protection and regulation of buildings, structures and areas of historic importance in the Borough. These benefits include strengthening stimulation to the tourist industry, improvement of property values and the fostering of civic pride.

STREET FEATURES + CHARACTERISTICS



The southern section of W. Main Street between Walnut Street and Chestnut Street

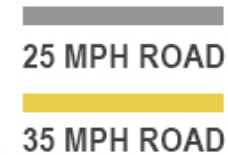


STREET FEATURES

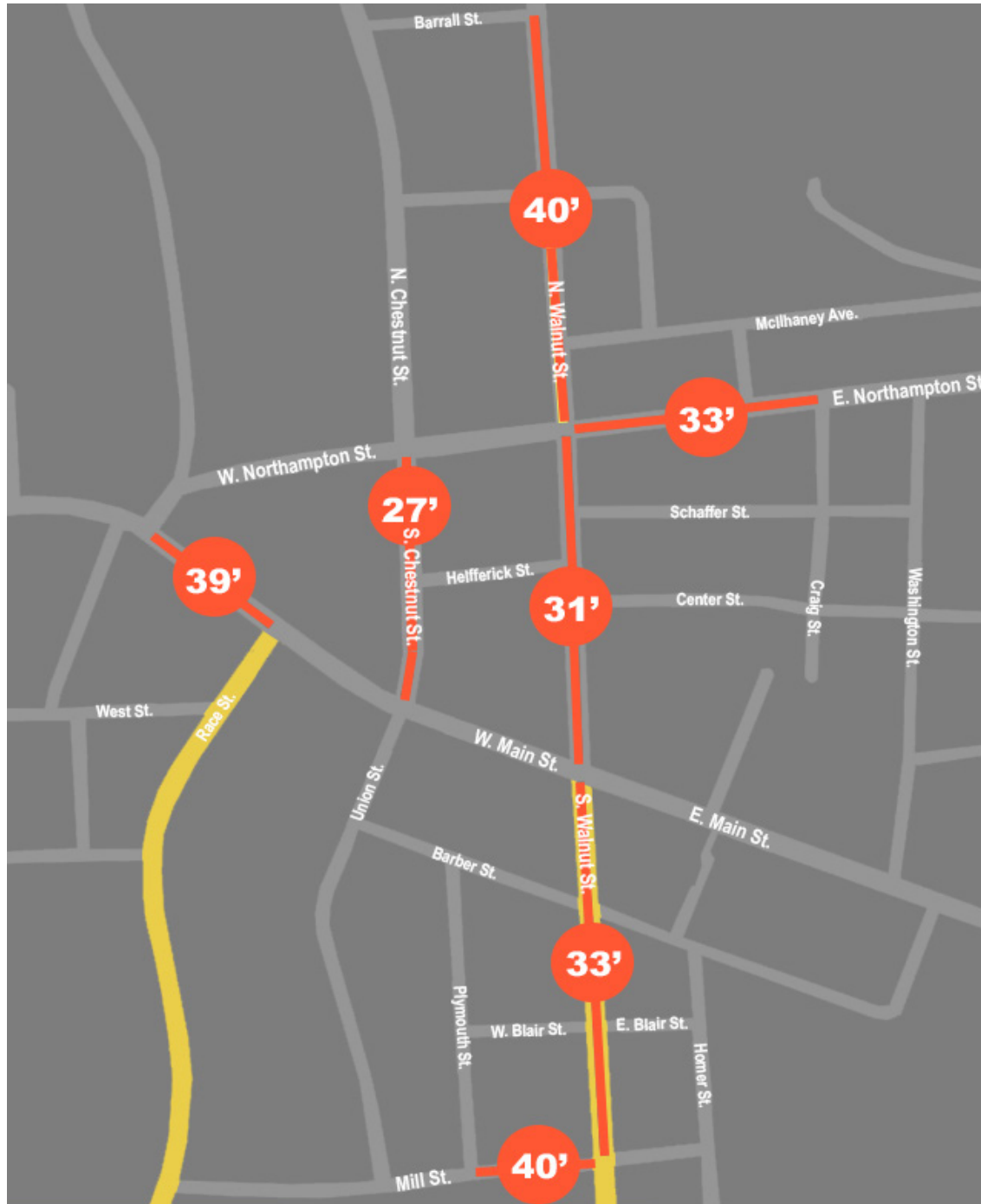
-  Traffic-Signal Controlled Intersection
-  Stop-Controlled Intersection
-  One-Way Street
-  Handicapped Parking Space
-  Weight-Restricted Road Sign Posting
-  No Parking Permitted Any Time

This map shows the variety of ways the Borough's road network can be used. Which direction vehicles can travel, where and how they can stop at intersections, and how special vehicles are accommodated (handicap-permit vehicles or high-weight vehicles) all impact on the usability and efficiency of the roads.

STREET WIDTHS + POSTED SPEEDS

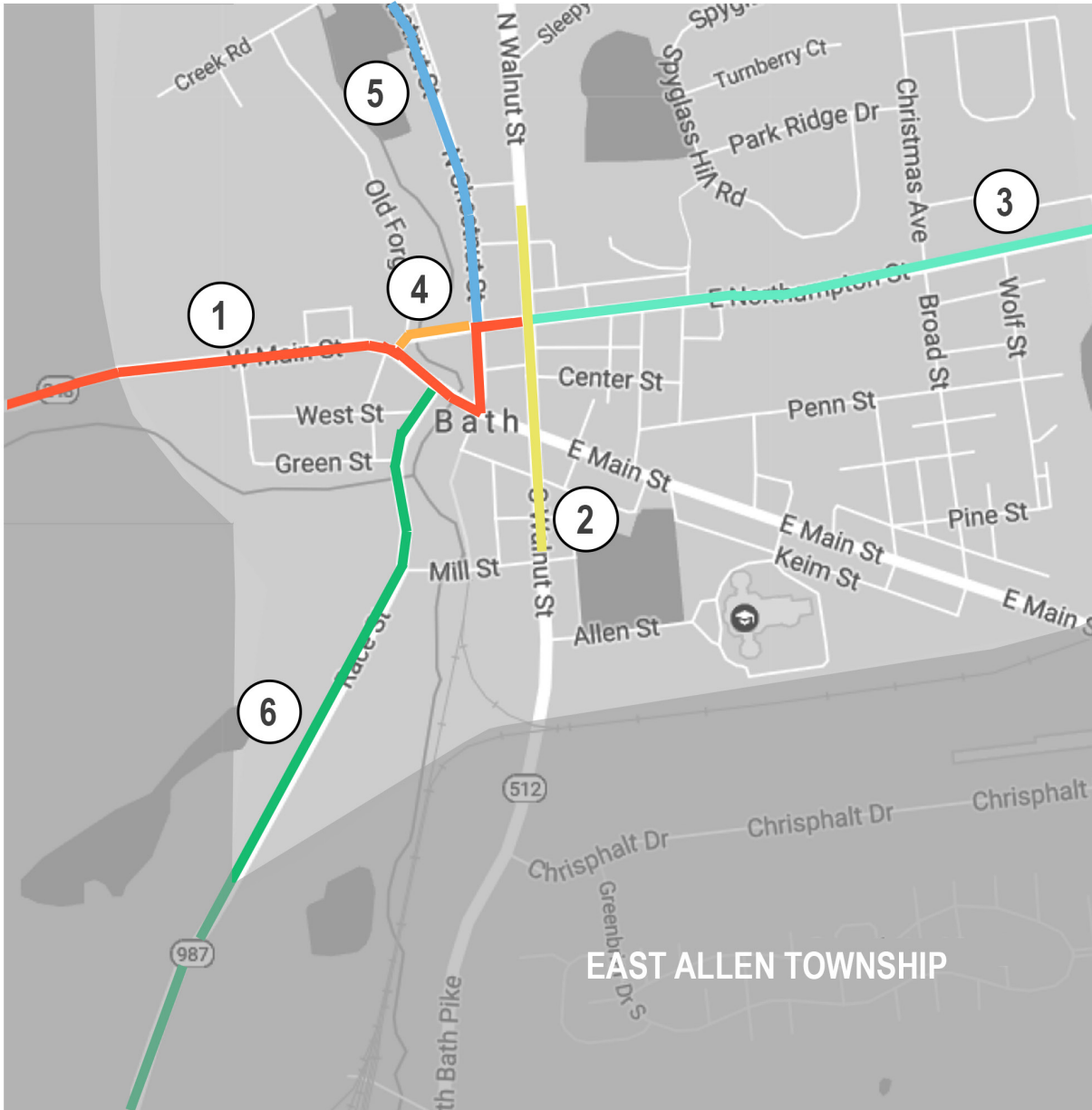


This map shows that streets in the Borough are not 'one-size-fits-all'. Because of changes in road widths and speed limits, each road accommodates different sizes or volumes of vehicles in a different way. These variations influence not just the comfort level of using a street, but the relationship between the particular elements which may impact the safety of the wide variety of users.



PROJECTED PENNDOT ROAD WORKS

TRANSPORTATION IMPROVEMENT PROJECTS / TWELVE-YEAR PROGRAM PROJECTS IN THE BOROUGH



1. Route 248 Resurfacing -
Estimated Commencement 09/30/2018
Estimated Cost \$3.4 million
2. Walnut Street Resurfacing -
Estimated Commencement 06/27/2022
Estimated Cost \$1.48 million
3. Bath Pike Resurfacing from PA 329 to
Hollow Road -
Estimated Commencement - 05/25/2020
Estimated Cost \$3.87 million
4. Route 248 Realignment -
Estimated Commencement 12/09/2019
Estimated Cost \$3.65 million
5. Airport Road (Rte 987) Resurfacing -
Estimated Commencement 9/30/2024
Estimated Cost \$2.7 million
6. NorBath Blvd. Resurfacing -
Estimated Commencement 9/30/2025
Estimated Cost \$2.7 million

SIDEWALK INVENTORY

 Sidewalk on both sides of the street

 Sidewalk on one side of the street

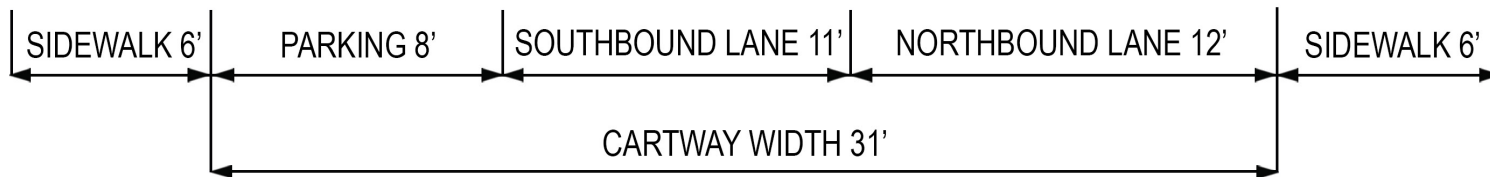
TOTAL LINEAR FEET =

67,727 (12.8 miles)

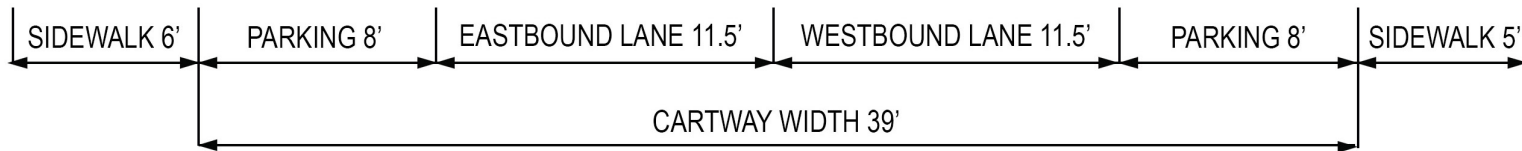
A complete, well-maintained sidewalk network is essential for providing pedestrians with uninterrupted access along the routes leading to where they need to go. Sidewalks prevent unsafe scenarios of 'road negotiation' between pedestrians and drivers. They also reduce the need to utilize uneven, dirty or unlit paths not safe for use, especially for those needing mobility assistance or of limited mobility. In general, sidewalks encourage people to get outdoors, improve health and build positive interactions with the street.

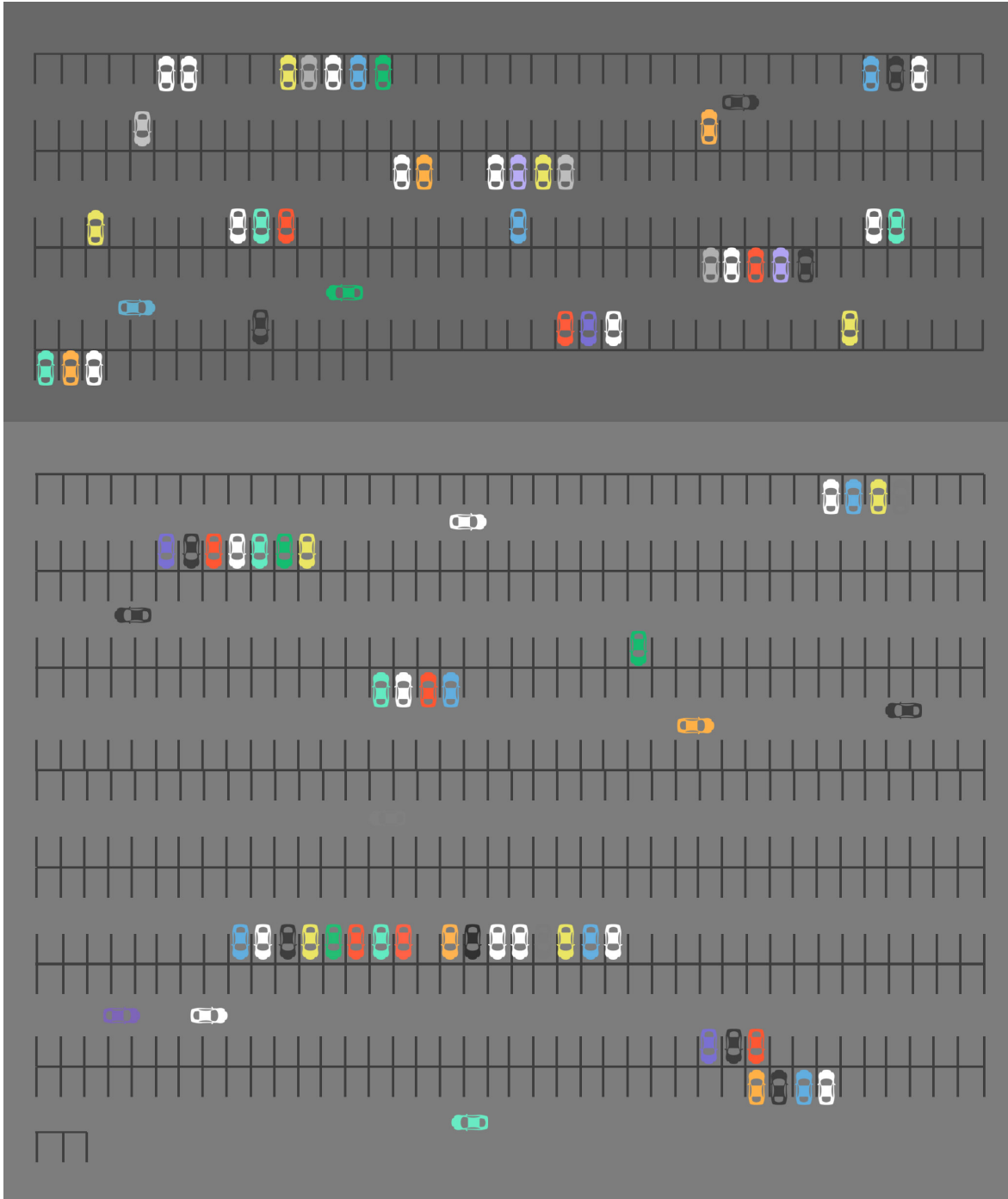


TYPICAL STREET SECTION (N. WALNUT STREET)



TYPICAL STREET SECTION (W. MAIN STREET)





SPACES FOR VEHICLES

These numbers are an approximate count due to the informality (lack of striping) of many spaces.

255

of public (on-street) parking spaces

502

of public and private (off-street) non-residential parking spaces

BATH HISTORIC DISTRICT “PALETTE”

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.



Sample architectural style found in the historic district

STREET LIGHTING

EXISTING FIXTURE SPACING

Standard fixtures are an average of 200' apart.
Historic fixtures are an average of 50' apart.



Adequate street lighting improves safety by making signs more visible, illuminating potential road hazards, highlighting pedestrian movements, and improving general visibility in adverse weather conditions. Lighting can affect vehicle speeds and can be used to curb speeding.

Street lighting also increases the approachability of streets and all of its users. Pedestrians, cyclists and vehicle drivers are drawn to places that deter opportunities for unsafe activities or interactions. In general, more street lighting attracts more street users and can encourage community vitality.



Historic Fixture
12' High Typical



Standard Fixture
25' High Typical

LIGHTING STANDARDS

● 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.

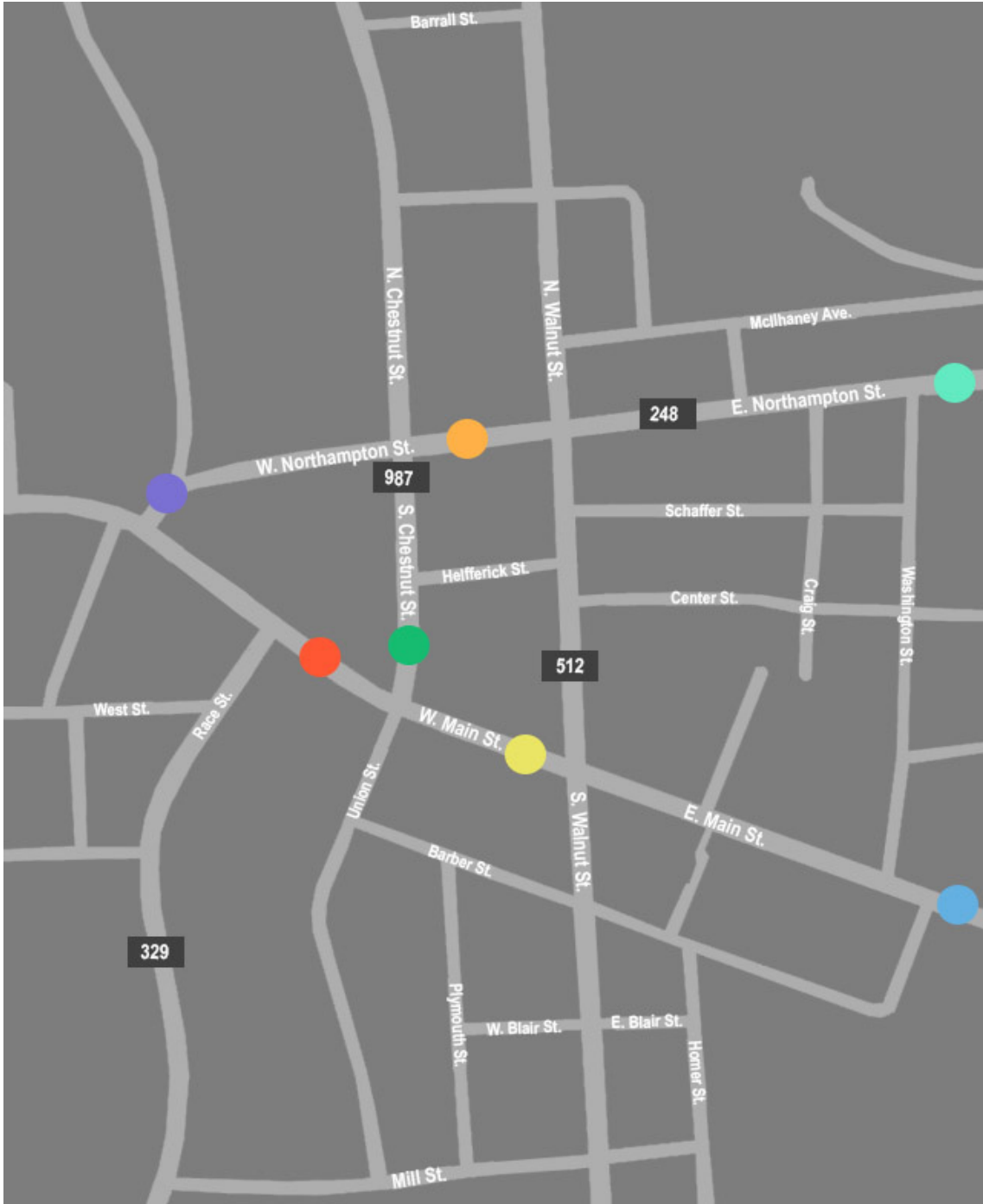
-Project for Public Spaces



STREET USAGE



W. Northampton Street looking toward its intersection with Walnut Street













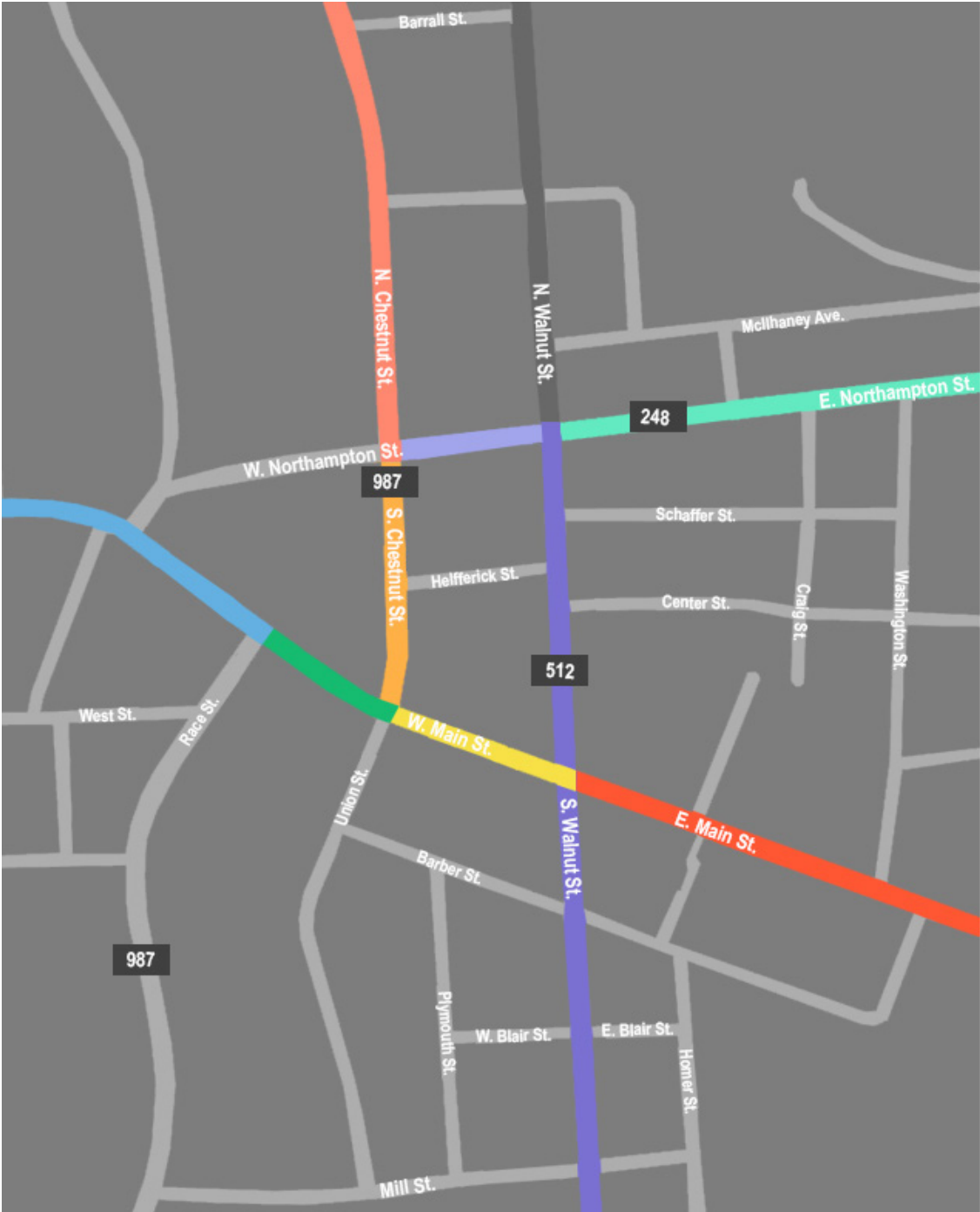
AVERAGE DAILY TOTAL VEHICLES

Count Location	# Vehicles	Base Year Measured
----------------	------------	--------------------

●	11,890	2015
●	9,618	2014
●	8,473	2015
●	6,848	2015
●	6,740	2015
●	4,964	2014
●	2,876	2014

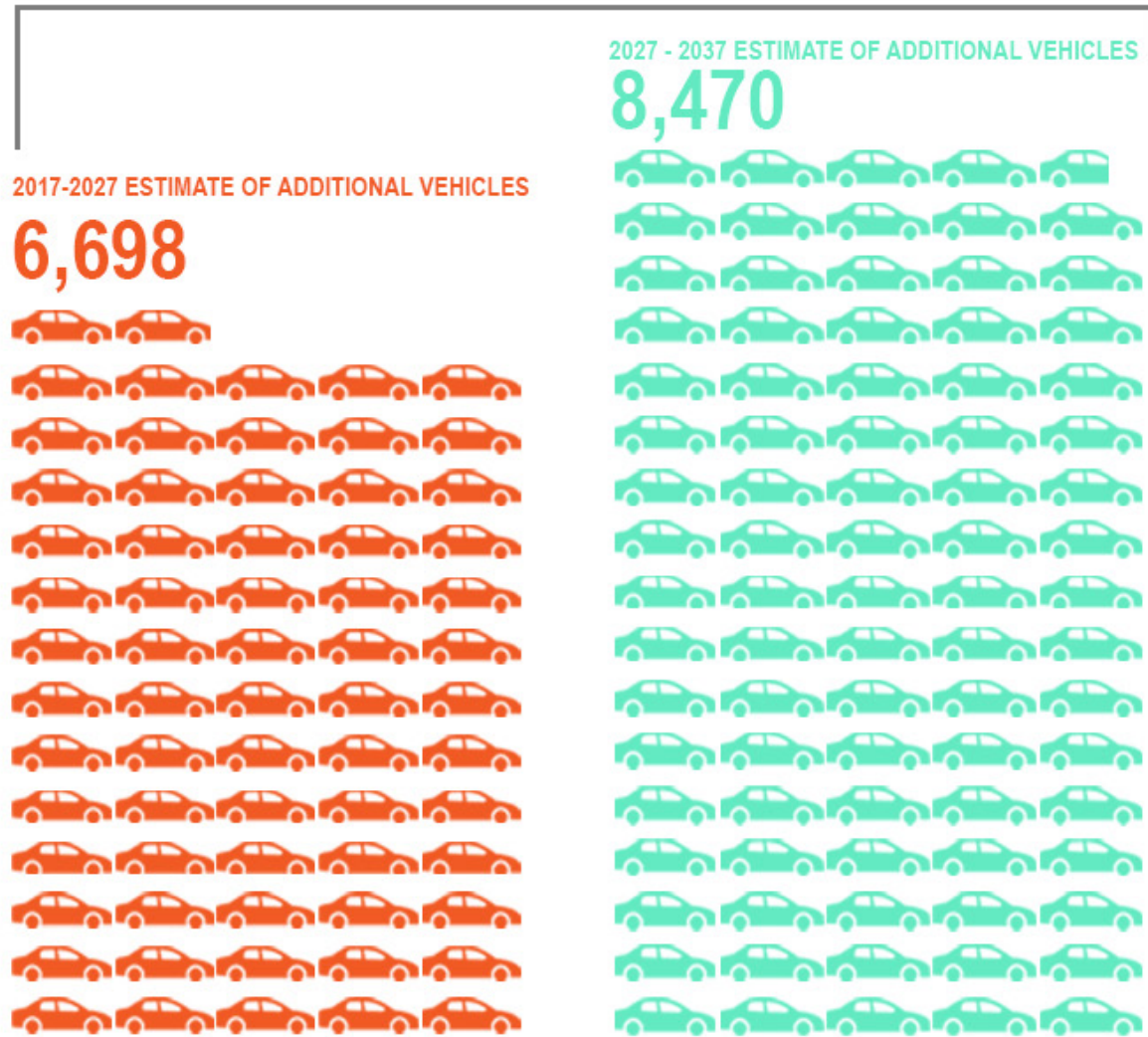
AVERAGE DAILY TRUCK TRAFFIC

Road Segment	# Trucks 2017 Estimate	% of All Daily Vehicle Traffic	Base Year Measured
	404	(6%)	2015
	577	(6%)	2014
	594	(7%)	2015
	714	(6%)	2015
	1,189	(10%)	2015
	684	(10%)	2015
	893	(7%)	2015
	154	(5%)	2012
	356	(7%)	2014
	749	(8%)	2015



20-YEAR PROJECTION OF DAILY VEHICLES ON BATH ROADS

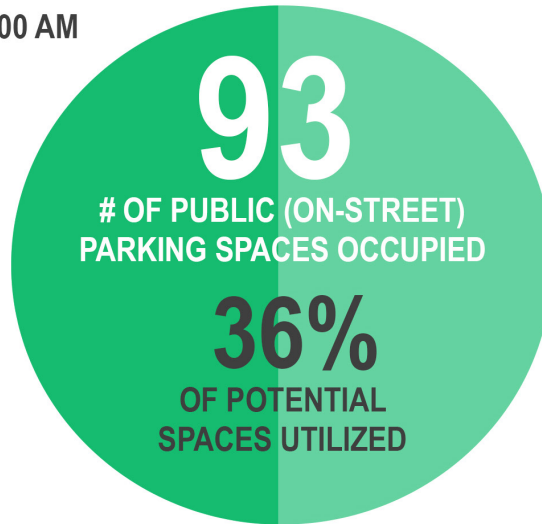
29.5% estimated increase



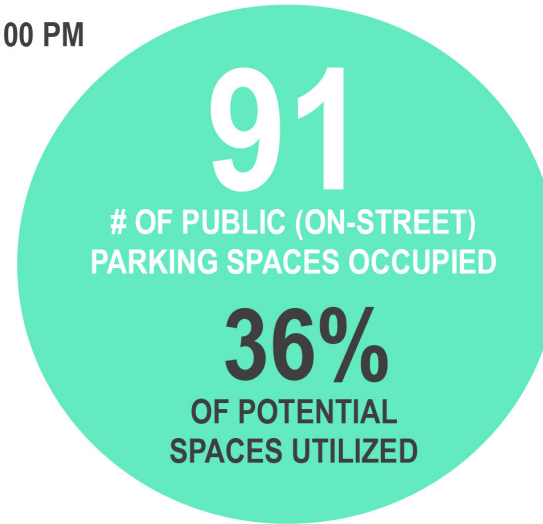
PUBLIC PARKING COUNT SAMPLE

CONDUCTED FEBRUARY 2017 (RANDOM, MID-WEEK DAY SELECTED)

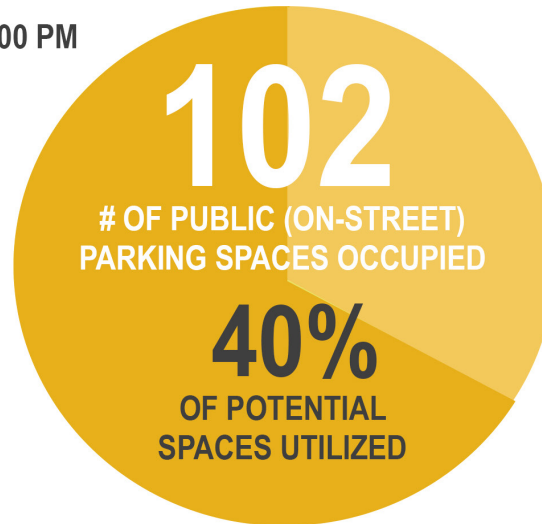
6:00 AM



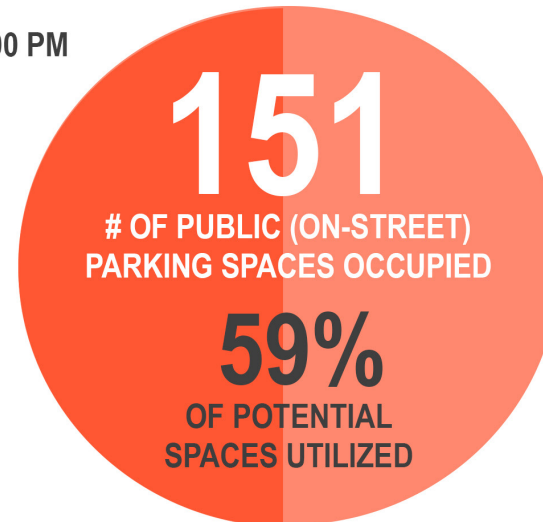
12:00 PM



4:00 PM



6:00 PM





Lehigh Valley Planning Commission Staff

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Erin Willis, Executive Secretary

Data Sources

Bath Borough

George Wolf Elementary School

Lehigh Valley Planning Commission

Northampton Area School District

Northampton County

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Pennsylvania Department of Transportation District 5

Sacred Heart Private School

U.S. Census Bureau, American Community Survey



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