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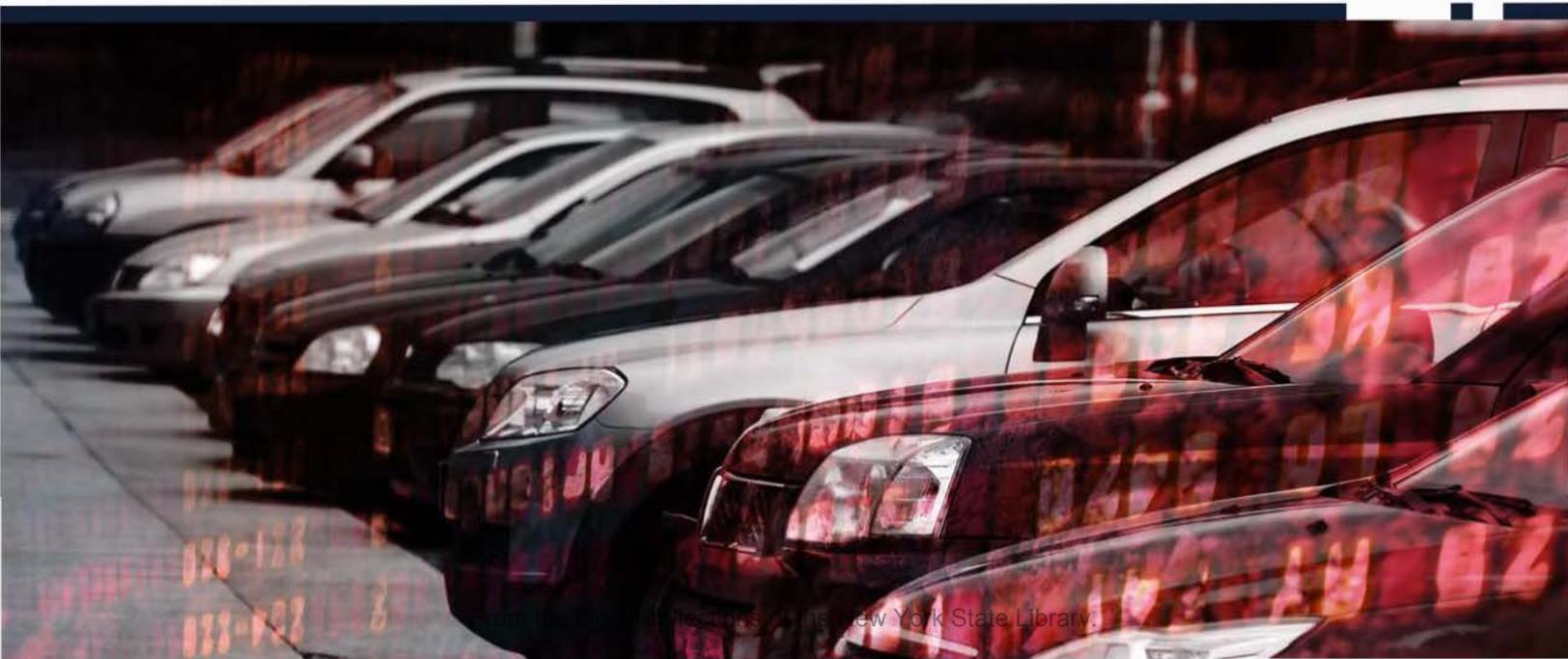
Residential Parking Benefits District Study Fruit Belt Neighborhood, Buffalo, NY

Final Report
August 2016

Presented by:



 Buffalo Niagara Medical Campus



Residential Parking Benefits District Study, Fruit Belt Neighborhood, Buffalo, NY

Final Report

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Abstract

The Buffalo Niagara Medical Campus (BNMC) is a consortium of nine healthcare, research, and educational institutions located on 120 acres in downtown Buffalo, New York. Currently, BNMC member institutions have a total of approximately 12,000 full- and part-time employees. This number is anticipated to increase to approximately 17,000 over the next two years due to a number of current large-scale capital projects. The Fruit Belt Neighborhood is located directly east of the BNMC, between Michigan Avenue to the west, Jefferson Avenue to the east, Best Street to the north, and BFNC Drive to the south. While the rapid growth of the campus continues to bring about enormous economic and community development opportunities for the Fruit Belt and the entire Western New York region, there is growing concern about the current and potential impacts of increased traffic and parking congestion in this residential neighborhood. Today, a number of campus employees park in the Fruit Belt Neighborhood during peak hours because on-street parking is both free and unrestricted, versus parking on the medical campus which is both carefully managed and at market rate. To address this issue, BNMC has secured funding for the community to perform a study of on-street parking in the Fruit Belt Neighborhood. The study explored best practices and provided recommendations for the creation of a parking benefits district in the Fruit Belt permit area under a residential and employee parking permit program with alternating sides which would help to achieve the following goals: (1) effectively manage the on-street parking supply and demand in the neighborhood, (2) reduce the number of single occupant vehicles driving to and from the area, (3) provide a set of customizable active parking management (APM) strategies, (4) improve the access, mobility and quality of life of Fruit Belt residents, and (5) identify sound financial management strategies for use of potential parking revenues. This study incorporated guidance from a Project Steering Committee including representatives from the BNMC member institutions, the City of Buffalo, the NYS Office of the Assembly, the NYS Senate, Fruit Belt residents, and advocacy organizations. Ultimately, the City of Buffalo, local union representatives, elected officials, and Fruit Belt Neighborhood representatives have agreed upon a residential parking permit system that designates half of each block in the permit area as resident parking only with the other half open to the public. Other details of the program are still under consideration.

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Executive Summary

Background

The Buffalo Niagara Medical Campus (BNMC) is a consortium of nine healthcare, research, and educational institutions in downtown Buffalo, New York. Currently, BNMC member institutions have a total of approximately 12,000 full- and part-time employees. This number is anticipated to increase to 17,000 over the next few years due to a number of large-scale capital projects.

The Fruit Belt Neighborhood is located directly east of the BNMC, between Michigan Avenue to the west, Jefferson Avenue to the east, Best Street to the north, and BFNC Drive to the south. While the rapid growth of the campus continues to bring about enormous economic and community development opportunities for the Fruit Belt and the entire Western New York region, there is growing concern about the current and potential impacts of increased traffic and parking congestion in this residential neighborhood. Today, a number of campus employees park in the Fruit Belt Neighborhood because on-street parking is both free and unrestricted. To address this issue, the BNMC secured funding to perform a study of on-street parking in the Fruit Belt Neighborhood. This study incorporated guidance from a Project Steering Committee including representatives from the BNMC member institutions, the City of Buffalo, the NYS Office of the Assembly, the NYS Senate, Fruit Belt residents and advocacy organizations. The study explored best practices and provided recommendations for the development of a parking permit system with a residential parking benefits district, which would effectively manage the on-street parking, reduce the number of single occupant vehicles driving to and from the area, and improve the access, mobility and quality of life of Fruit Belt residents while providing a revenue source for capital improvements.

Parking Supply and Demand

The study included an inventory of parking supply and demand for a typical weekday. The study area was broken down into three sub-areas: Sub-Area A (Michigan Ave. to Locust St.), Sub-Area B (Locust St. to Peach St.), and Sub-Area C (Peach St. to Jefferson St.). Data for effective supply, occupancy, and utilization for each sub-area during the peak mid-day time period is presented in the table below. The peak demand is on roads immediately adjacent to the BNMC (Sub-area A). The peak time period is at midday due to the smallest effective supply at that time under existing parking restrictions and existing demand. With anticipated employee growth through 2020, parking demand is projected to fill all on-street spaces from Maple through Orange streets with no changes to parking regulations.

ES-1. Mid-day Supply and Demand

Supply and demand by sub-area with existing (2016) and projected future (2020) utilization.

C&S Engineers and BNMC

Study Area	Midday (11am-1pm)			
	Effective Supply	Occupancy	Existing (2016) Utilization	Projected (2020) Utilization
Sub-area A	298	276	93%	100%
Sub-area B	337	163	48%	77%
Sub-area C	307	45	15%	14%
Total	942	484	51%	51%

Parking surveys were also distributed to Fruit Belt residents, organizations, and businesses to obtain their thoughts regarding parking in the neighborhood. Seventy-eight responses were received from residents, with the majority of responses coming from streets adjacent to the BNMC in Sub-area A (e.g. Maple, Locust, and Mulberry). Almost 75% of all respondents indicated that it was very or extremely difficult to find on-street parking in the Fruit Belt. 40% of respondents indicated not having sufficient off-street parking to accommodate their vehicles.

Potential Strategies

Potential strategies were developed to meet the study objectives and comply with existing legislation for parking permit programs in the State of New York. These strategies were evaluated for a series of characteristics as shown in the table below:

ES-2. Potential Strategies Alternatives

Alternatives for potential strategies categorized by low/easy, medium, and high/difficult for selected characteristics.

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	Alternatives				
	Striping Spaces	Alternate Side Street Parking	Permit Program: Residential	Permit Program: Residential & Employee	Parking Benefits District
Ease of Implementation					
Cost of Implementation					
Cost to Residents					
Impact to Resident Supply					
Reduce BNMC Employee Parking					
Operations & Maintenance Effort					
Revenue Potential					

Low/easy Medium High/difficult

Through consultation with the Project Steering Committee and the Division of Parking Enforcement, the following preferred strategy was identified:

Residential and Employee Parking Permit Program with Alternating Sides

- A permit district would be created for the area bound by Michigan St., Orange St., Best St., and Goodell Street/BFNC Drive.
- Each block would be split into residential and employee designated parking areas.
- Alternate side-street parking would be in effect on weekdays with one weekly switchover time.
- Permits would be free for residents; employee fees would be dependent upon proximity to the BNMC.
- Revenue generated would be used for program implementation. Any additional revenue would be allocated to a parking benefits district and dedicated to implementing neighborhood improvements (e.g. installation of bike lanes, sidewalk repairs, community beautification and public safety projects).
- Consistent with legislation, at least 241 commercial spaces would be metered within commercial-zoned areas with funds providing revenue for the benefits district.

Parking Agreement

On May 12, 2016, subsequent to the development of this recommendation, an agreement was reached between elected officials, union representatives, resident representatives, and the City of Buffalo. Under this agreement, alternate side-street parking will still remain in effect and each street from Maple to Orange will be broken down into half blocks. One half of each block will be designated for residential parking only, with residents able to obtain free residential parking permits. The other half of each block will remain open as free and unrestricted parking for the general public. While this agreement will ensure part of each block will be designated for residential use, there will be no deterrent for BNMC employees or construction workers to park within the neighborhood. Therefore, most of the goals and objectives for this study would not be met such as reducing parking demand and providing a potential revenue source for the neighborhood.

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Appendix B – Residential Survey Data

Appendix C – Best Practice Summary

Appendix D – Preferred Alternatives Summary

Appendix E – Public Participation

Appendix F – Financial Information

Acronyms and Abbreviations

APM	Active Parking Management
BNMC	Buffalo Niagara Medical Campus
CA	California
C1	Neighborhood Zoning Business District
C2	Community Business District
CM	General Commercial District
DOT	Department of Transportation
EGG	Ellicott Goodrich Garage
FB	Fruit Belt
GIS	Geographic Information System
LA	Los Angeles
MA	Maine
MIGO	Michigan Goodrich Garage
NYS	New York State
PBD	Residential Parking Benefits District
PILOP	Payment in Lieu of Parking
PPPD	Preferential Parking Permit District
PSC	Project Steering Committee
PPP(D)	Preferential Parking Permit (District)
R1	Residential Dwelling District
R2	Residential Dwelling District
RPP	Residential Parking Permit

(S)DOT	(Seattle) Department of Transportation
SFMTA	San Francisco Municipal Transportation Agency
TDM	Transportation Demand Management
TX	Texas
US	United States
VAT	Vehicle and Traffic

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Section 1— Introduction

1.1 Study Purpose

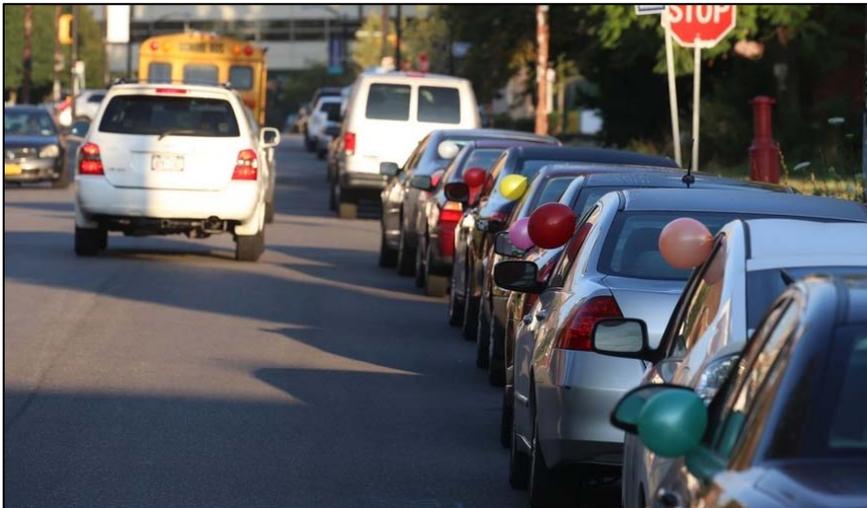
The Buffalo Niagara Medical Campus (BNMC) is a consortium of nine healthcare, research, and educational institutions located on 120 acres in downtown Buffalo, New York. Currently, BNMC member institutions have a total of approximately 12,000 full- and part-time employees. This number is anticipated to increase to approximately 17,000 over the next two years due to a number of current large-scale capital projects. The Fruit Belt Neighborhood is located directly east of the BNMC, between Michigan Avenue to the west, Jefferson Avenue to the east, Best Street to the north, and BFNC Drive to the south. While the rapid growth of the campus continues to bring about enormous economic and community development opportunities for the Fruit Belt and the entire Western New York region, there is growing concern about the current and potential impacts of increased traffic and parking congestion in this residential neighborhood. Today, a number of campus employees park in the Fruit Belt Neighborhood during peak hours because on-street parking is both free and unrestricted, versus parking on the medical campus which is both carefully managed and at market rate.

The Fruit Belt parking issue has attracted the attention of local and state government officials who are currently lobbying for state legislation which would enable local officials to implement a residential parking permit program in the Fruit Belt Neighborhood. However, the characteristics and details of such a permit program are yet to be determined, hence the need for a comprehensive study of potential strategies that would create a “win-win” for all involved stakeholders.

Figure 1-1. Fruit Belt Neighbourhood 'Park In' Protest

Fruit Belt Residents stage a protest by attaching balloons to their cars.

The Buffalo News, Janice L. Habuda, News Staff Reporter, August 10, 2015



Residents vehicles with balloons in parking spaces on High Street , they parked on the streets to keep Medical Campus workers from parking in them, they are protesting over fact that residents can't park on their own streets because medical campus won't provide parking for its workers at the Buffalo Medical Campus on in Buffalo, N.Y., on Sunday, Aug. 9, 2015. (John Hickey/ Buffalo News)

This study of on-street parking in the Fruit Belt Neighborhood explores best practices and provides recommendations for development of a model Residential Parking Benefits District (PBD), and/or other alternative strategies. The overall goals and objectives of the proposed study are as follows:

- Explore the potential for a model Parking Benefits District in the Fruit Belt Neighborhood
- Provide a set of customizable active parking management (APM) strategies
- Effectively manage the on-street parking supply and demand in the neighborhood
- Reduce the number of single occupant vehicles driving to and from the area thereby reducing congestion and improving air quality
- Improve the access, mobility and quality of life of Fruit Belt residents
- Identify sound financial management strategies to ensure the appropriate use of revenues

1.2 Study Area Characteristics

The study area (**Figure 1-2**) includes most of the Fruit Belt Neighborhood, which is bound by Best Street to the north, Jefferson Avenue to the east, BFNC Drive to the south and Michigan Avenue/BNMC to the west. For the purposes of this study, the area has been broken down into three sub-areas:

- Sub-area A - Michigan Avenue to Locust Street
- Sub-area B - Locust Street to Peach Street
- Sub-area C - Peach Street to Jefferson Street

At one time, the neighborhood was home to more than 10,000 people. The Fruit Belt takes its name from the large number of orchards its first residents, German immigrants, planted in the area. As the neighborhood grew, these orchards laid out the present streets, the names themselves (which include Lemon, Cherry and Grape) remaining as a testimony to the early nature of the neighborhood.

The neighborhood's establishment is also closely related to the organization of the Trinity Old Lutheran Church, initially located on the corner of Michigan Avenue and Goodell Street. Founded in 1839, the congregation consisted of Lutherans who had traveled from Southern Germany to escape religious persecution there. Upon arriving in Buffalo, the group of 1,000, seeking to settle away from the influences of the established populations, selected the area north of the existing downtown core. At the base of the gently rising hill they built their place of worship and settled in the streets surrounding it.

Currently, the Fruit Belt is an historic, tight-knit, and predominantly African American inner-city neighborhood. Michigan Avenue bounds the neighborhood to the west and reflects the area's Underground Railroad history. Just north of the Fruit Belt, visitors to the area can find the Michigan

Avenue Baptist Church and the Colored Musicians Club, both landmarks of Buffalo's African American community.

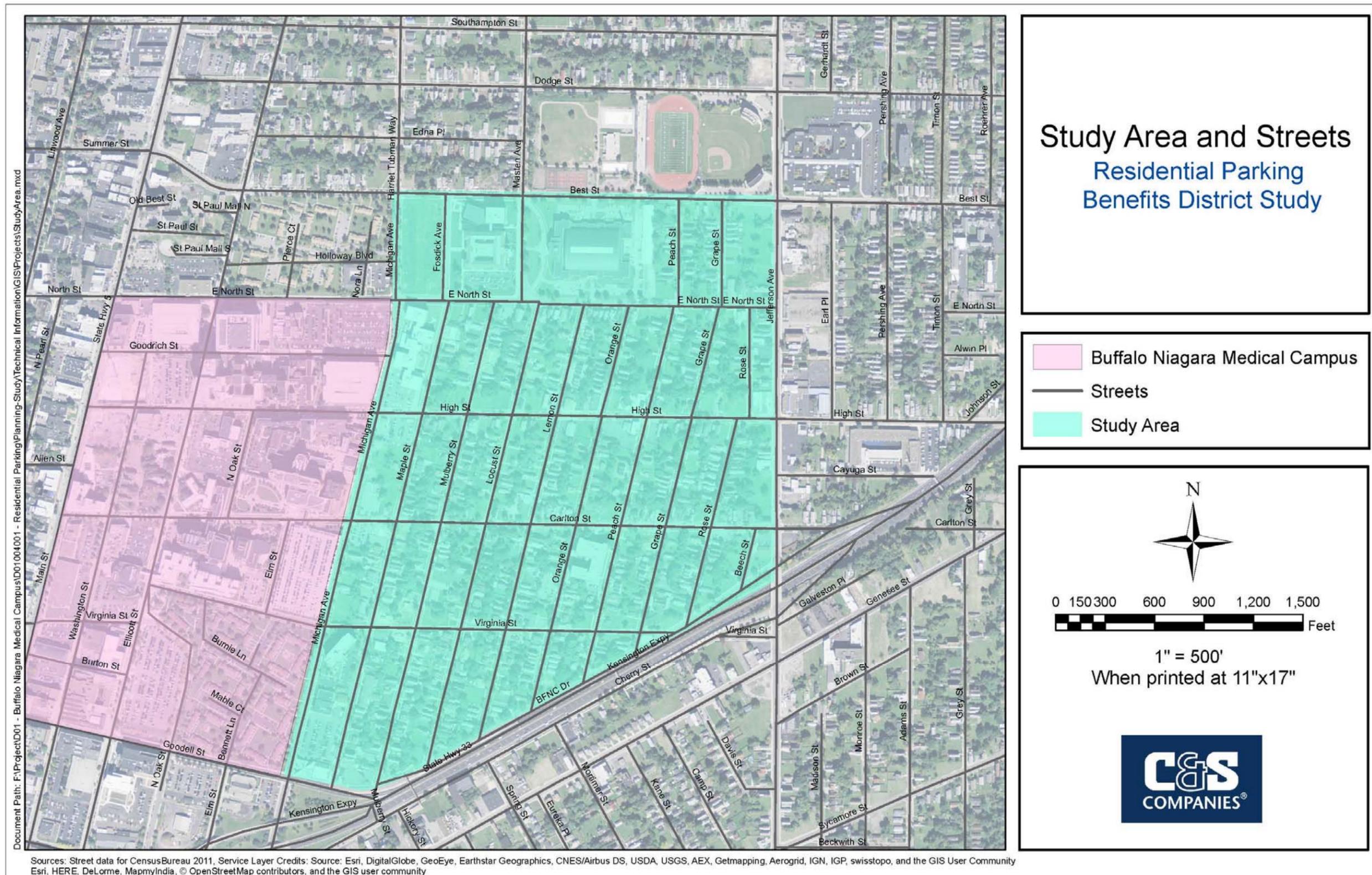
According to the 2010 American Community 5-year Survey, there are 1,516 housing units in the Fruit Belt neighborhood, 402 of which are vacant. The 2010 U.S. Census indicates that the median household income in the Fruit Belt is just \$16,507. In comparison, the median household income for the City of Buffalo is \$30,942. Of the 929 households, 508 (or 55%) own at least one vehicle and 421 (or 45%) have no vehicle available to them.

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Figure 1-2. Study-Area Fruit Belt Neighbourhood

The Fruit Belt Study Area borders the eastern edge of the Buffalo Niagara Medical Campus..

Source: US Census Bureau, 2011



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1.3 Study Tasks

This study was defined by a number of tasks that are meant to ensure the recommended actions are based on technical data collection and analyses, research of best practices throughout the country, and community involvement.

- Public Involvement

A Project Steering Committee (PSC) including key local agencies and employee, resident, and business representatives reviewed progress and provide guidance throughout the course of the project. The PSC met three times throughout the study. Summaries and presentations from these meetings can be found in **Appendix E**. The PSC includes representatives from the following:

 - City of Buffalo
 - BNMC institutions: Roswell Park Cancer Institute, Kaleida Health, University of Buffalo
 - NYS Assemblypersons Peoples-Stokes
 - NYS Senator Kennedy
 - Fruit Belt organizations & resident representatives
 - Local advocacy organizations

- Data Collection

The Fruit Belt Neighborhood consists of 40 blocks and the data collection effort included:

 - Review of existing planning documentation
 - Collection of on-street and off-street parking supply and occupancy data through field investigations
 - Residential, business, and organizational surveys conducted throughout the neighborhood via door to door engagement, as well as community meetings and internet opportunities

- Parking Supply & Demand Analyses

The focus of this task was to document the existing parking supply and demand based on data collected and to develop the future supply and demand scenario, utilizing any anticipated changes to the demand due to anticipated growth of the BNMC through 2020.

- Identify & Evaluate Strategy Alternatives

Strategies may include, but not be limited to:

 - Changes to existing (or additional) policies and programs of BNMC member institutions
 - Increased enforcement of existing parking restrictions
 - Development of a residential permit program
 - Establish a parking benefit district
 - Establish on-street parking metering and payment structure
 - Consider electronic and/or mobile device payment options

- Establish time limits for on-street parking
- Document Best Practices
By researching how other municipalities and neighborhoods address issues and concerns similar to those in the Fruit Belt Neighborhood, better strategies were identified to help serve the goals and objectives of this study. Five (5) on-street parking management programs, including residential parking permit programs and parking benefits districts, were documented.
- Recommendations & Implementation Plan
A recommendation was provided for on-street parking management strategies to meet the needs of residents, reduce the number of single-occupancy vehicles driving to and from the area, and provide a financial support mechanism for the implementation and maintenance of complete streets and an enhanced public realm. The implementation plan includes:
 - Implementation, Operations, & Management Plan
 - Pricing Plan
 - Financial Plan

1.4 Definition of Terms

Several terms used in this report have unique meanings when used in the parking industry. To help clarify these terms and enhance understanding by the reader, definitions for some of these terms are presented below.

- Residential Area – An area in which the predominant land use is housing. Housing can vary significantly, but includes single-family housing, multi-family housing, or mobile homes.
- Inventory - The total number of legal parking spaces documented through field observations or provided by facility owners.
- Parking Supply or Capacity - The number of parking spaces available in a given area at any given time.
- Effective Supply – Effective supply accounts for the fact that 100% of the total parking supply or capacity is not always usable due to the need to find parking by circulating within a facility or around a block and also maneuvering time into and out of spaces. Effective supply generally ranges from 85-95% of the capacity. For the purposes of this study, an 85% effective supply was assumed for on-street facilities (accounting for the potential for inefficient parking and/or snow storage).
- Parking Demand - The number of drivers that desire to park in a particular area during specified time periods. Existing demand is based on actual field observations of occupancy. Future demand was projected based on anticipated demand.
- Parking Surplus - The extent to which parking supply exceeds demand.
- Parking Deficiency - The extent to which parking demand exceeds supply.

- Residential and/or Employee Permit Program – A type of parking program used to alleviate the effects of parking congestion in residential areas. This type of program targets heavily congested parking areas and then allows unrestricted parking within these areas to permit holders. Permits are granted based on location of residence and/or location of employment. Those without permits are subjected to the parking restrictions that exist in these areas during periods of peak on-street parking occupancy. This type of program can also incorporate a visitor pass system and a permit renewal system. Signage for each restricted parking area and enforcement is a necessity for this type of program's success.
- Preferential Parking Permit Program - A type of parking program used to alleviate spillover of commuter and non-residential parking in residential areas. In this program, Preferential Parking Permit Districts (PPPDs) are created and designated by signs in areas of parking congestion. Residential permits are permitted to those who choose to participate and exempts holders from the 24-hour time limit restrictions that exist in the district and apply to non-permit holders. This program can also utilize a visitor permit and daily permit system.
- Parking Benefit District - A type of program used to create on-street parking availability by improving and promoting public transit or walkability of the area within its boundaries. This program creates districts of metered parking in which the funds from its meters are used to improve transportation elements in the district. Examples of elements that can be improved are: bus shelters, bicycle lanes, lights, sidewalks, and curb ramps. Parking permits can also be implemented into this type of program for residents or employees of the district to purchase.
- Performance Based Parking - A type of program that adjusts the rates for available on-street parking to comply with that of demand. This parking program creates districts based on nearby land uses and creates target occupancies for each block within this district. The prices of these metered parking spots are then adjusted on a predetermined time frame (often yearly) to match their target occupancy. For this reason, in a typical performance based parking district, one could expect a decrease in parking prices ranging out from more popular parking locations.
- Payment in Lieu of Parking Program - A type of program used to improve public parking and infrastructure in areas of parking density. This program establishes a set amount of parking spaces required per square foot of floor area. Owners that are unable to meet this parking requirement are able to pay an opt-out fee. Funds from this program can be used to enhance public parking and other infrastructure improvements. Alternatively, funds can also be saved for large scale projects.

1.5 Example Programs

Critical to understanding parking benefit districts is to identify best practices from cities nationwide already in implementation. The examples listed below best represent a spectrum of small, medium and large cities.

- Corn Hill, NY: Residential/Employee Parking Permit Program

Corn Hill, the oldest neighborhood in Rochester, is mostly residential. With its close proximity to businesses such as restaurants, recreational opportunities along the river, the Rochester Correctional Facility, and its walkability to downtown, there existed a great need for residents and employees of the neighborhood to be able to find on-street parking during daytime hours. Considering this and the fact that 80% of its residents owned at least one car, the Corn Hill Neighbors Association decided to take action and encouraged the City to implement a residential and employee parking permit program. The implementation of the program required the adoption of specific state legislation, the first in the state of its kind.

Under its residential and employee parking permit program, Corn Hill was able to reduce its parking problems. Parking permits are required Monday through Friday from 8AM to 5PM on marked streets. These permits can be purchased on a prorated basis by employees and residents of the neighborhood who are able to provide the proper documentation. Visitor passes can be purchased individually or can also be found in the residential permit pack. This program is enforced at least twice daily by the City's Bureau of Parking.

- Pasadena City College, CA: Preferential Parking Permit Districts

The City of Pasadena California implemented eight preferential parking permit districts (PPPDs) after an extensive parking study completed in 2003. One particular parking district, that of the neighborhood bordering Pasadena City College, the California Institute of Technology, and the Robinson Stadium, experienced significant parking spillover before becoming a PPPD. Now, on a yearly basis, residential households are able to receive up to three parking permits, three visitor permits, and daily permits in batches of ten for a very low cost. Since a parking permit is required at all hours of the day, residents can even apply for special event preferential parking exemptions if they are expecting over 40 vehicular guests to their home.

The PPPDs of Pasadena, CA are highly dependent on public participation. Any citizen can request the motion for the creation of a PPPD in their neighborhood. Once the process begins, the Department of Transportation (DOT) will meet with property owners to establish if there is a valid parking concern. If a concern is found, 67% of property owners abutting the street segment must agree to a parking study in order for the process to continue. After a parking study is completed, the majority of property owner's in the proposed district must agree to proceed with the proposal before the district can be established.

- West Campus, Austin, TX: Parking Benefit District

Located next to the University of Texas at Austin, the neighborhood of West Campus is heavily populated by students and receives about 75,000 visitors daily. Limited on its west side by Shoal Creek Park and then bordered on its east by the University and the commercial shopping area on Guadalupe Street, the West Campus neighborhood has experienced significant spillover in the past. Since 2004, the City has also passed a land-use plan that lets developers build taller and denser buildings in the neighborhood as long as they provide public benefits. This has exacerbated the parking problem for residents. For

these reasons, the neighborhood of West Campus was established as a parking benefit district.

Within the parking benefit district of West Campus, cars are restricted to a three hour parking limit at meters. These hours of restriction are adjusted according to daily demands. Residents who live in a building that was built in or before the city required builders to provide off-street parking can apply for a parking permit to be exempt from these restrictions.

In the City of Austin, a parking benefit district must include at least 96 parking spaces with meters because this is the minimum amount needed to generate enough revenue for maintenance and operation fees. 51% of all the funds acquired from these paid parking spaces that are in excess of the costs directly related to maintenance and operation are to be set aside for future district improvements. Funds may also be used in conjunction with other city funds for neighborhood improvements within the district from which they were generated in. Examples of improvements that have been made include: curb ramps, bicycle lanes, traffic calming methods, sidewalks, plazas, landscaping, and increased maintenance.

- Seattle, WA: Performance Based Parking Districts

The Seattle Department of Transportation (SDOT) has incorporated many performance based parking districts. A successful example is the district established next to the Seattle University Park, the Swedish Medical Center Campus, the Virginal Mason Seattle Main Campus Hospital, and the downtown Seattle area. In fact, there was such a high need for on-street parking due to spillover from surrounding land uses into this area, that this performance based parking district has the highest rates in all of Seattle.

Parking rates in Seattle are set yearly and adjusted at different times of the day to reflect demand. The rate to which prices are adjusted to is the target occupancy for the block. The goal target occupancy in all of Seattle is 70%-80%, or to have 1-2 spaces available per block throughout the day. A yearly review and annual parking studies completed by SDOT are used to readjust rates. If the target occupancy for a block is too low, rates at meters are decreased by \$0.50. If the target occupancy is too high, rates are increased by \$0.50. Some areas are also subjected to seasonal rates.

Another aspect of this type of parking system in Seattle is that signs are used to indicate “Best Value” parking blocks. These blocks are typically further away from popular destinations, but have longer time limits and lower rates. The use of these “Best Value” areas not only reduces parking density, but also encourages a healthier commute, and allows for the growth of businesses in new places where people did not usually park before.

- Coconut Grove, Miami, FL: Payment in Lieu of Parking

The coastal vacation neighborhood of Coconut Grove is the oldest continuously inhabited neighborhood of Miami. Its land uses consist mostly of yacht clubs, marinas, coastal properties, beaches, boardwalks, and shopping areas. With a constant stream of tourist and resident parking demand, there existed a need for monetary funds to improve public parking

and infrastructure. For this reason, the neighborhood of Coconut Grove established a Payment in Lieu of Parking Program (PILOP). Under this program, 90% of revenue generated are used to enhance public parking and other infrastructure improvements while the other 10% of revenue are saved for large scale projects.

The PILOP in the neighborhood of Coconut Grove works particularly well due to the creation of an ordinance in 1993 that requires a minimum of one off-street parking space per 200 sq. ft. of gross floor area for large-scale establishments (those of 20,000 sq. ft. or more). Those large-scale establishments that are unable to meet the parking requirement are able to pay an opt-out fee. A one-time opt-out fee is \$5,400 while a monthly opt-out fee is \$50/month. By having two opt-out fees, businesses are able to adjust their costs based on the presumed longevity of their establishment.

Section 2— Existing Conditions

In order to document existing conditions regarding the study area's on-street parking supply and demand issues and needs, a wide range of data was collected. Through field investigations, reviewing current and draft future zoning codes, and a survey of neighborhood residents, an inventory of the area's parking condition was completed.

2.1 Zoning

Zoning is the process of planning for land use by a municipality to allocate certain kinds of development in certain areas. Zoning also includes restrictions for the different zoning areas, such as off-street parking requirements, height of buildings, allowable signage, use of green space, density (number of structures in a certain area), use of lots, and types of businesses. Levels or types of zoning typically include open space, residential, retail, commercial, agricultural, and industrial.

The study area is mostly zoned as an R2 – Residential Dwelling District, with a small portion of parcels zoned as a C1 – Neighborhood Business District along High Street and Michigan Avenue. Along the eastern edge of the study area on Jefferson Street, parcels are zoned as a C2 – Community Business District, and a small percentage of parcels on the western edge of the study area include R3 zoned parcels. Two parcels along Michigan Avenue are zoned CM – General Commercial District. See **Figure 2-1** on the following page for the current zoning in the Fruit Belt Neighborhood.

Per the City of Buffalo zoning code, all dwellings in any district shall have at least one permanently maintained parking space per unit. In any C or CM district, there needs to be only one parking space for each two dwelling units. Off-street parking requirements for any commercial, retail, or office uses depend upon the proposed use of the building or property, the district it lies in, and the overall square footage of the building. For example, if a retail development of less than 5,000 square feet or a commercial building of less than 10,000 square feet is currently being proposed, there would be no off-street parking requirements.

The City of Buffalo is currently in the process of updating its zoning code. The future Green Code, a unified development ordinance, implements the community's vision for the development for the city¹ and eliminates minimum parking requirements. The Green Code does not propose significantly changing the districts within the study area, as shown in **Figure 2-2**. While the current zoning code has required property owners to provide off-street parking spaces, the future guidance will not include minimum parking requirements, instead allowing the market to respond to changing lifestyle preferences and a range of transportation choices. This does not mean proposed development will never need to provide off-street, on-site parking. Developers will still be required to prove their project will not adversely impact the surrounding neighborhood in terms of traffic operations/congestion, on-street parking, and other factors to obtain approval.

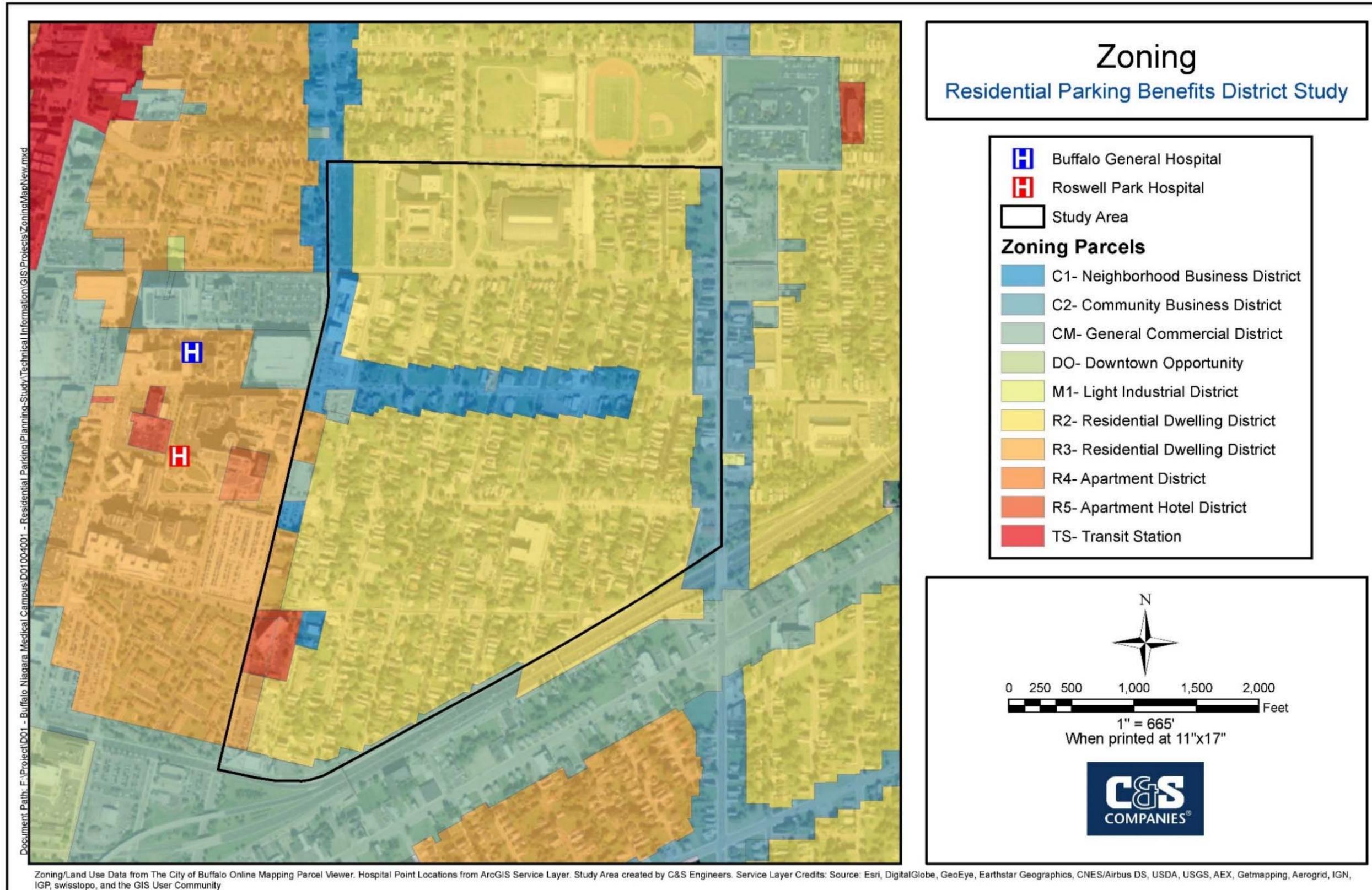
¹ <http://www.buffalogreencode.com/green-code-components/unified-development-ordinance/>, accessed 10/12/2015.

It is anticipated that any new development will provide on-site, market-driven off-street parking supply. However, the removal of minimum parking requirements in the proposed Green Code has the potential to exacerbate existing on-street parking demand.

Figure 2-1 City of Buffalo- Fruit Belt Neighbourhood

The Fruit Belt Study Area mostly resides in a Residential Dwelling District with some corridors in Neighborhood Business and Community Business Districts.

Source: <http://www.ecode360.com/11767383>, accessed 10/9/15

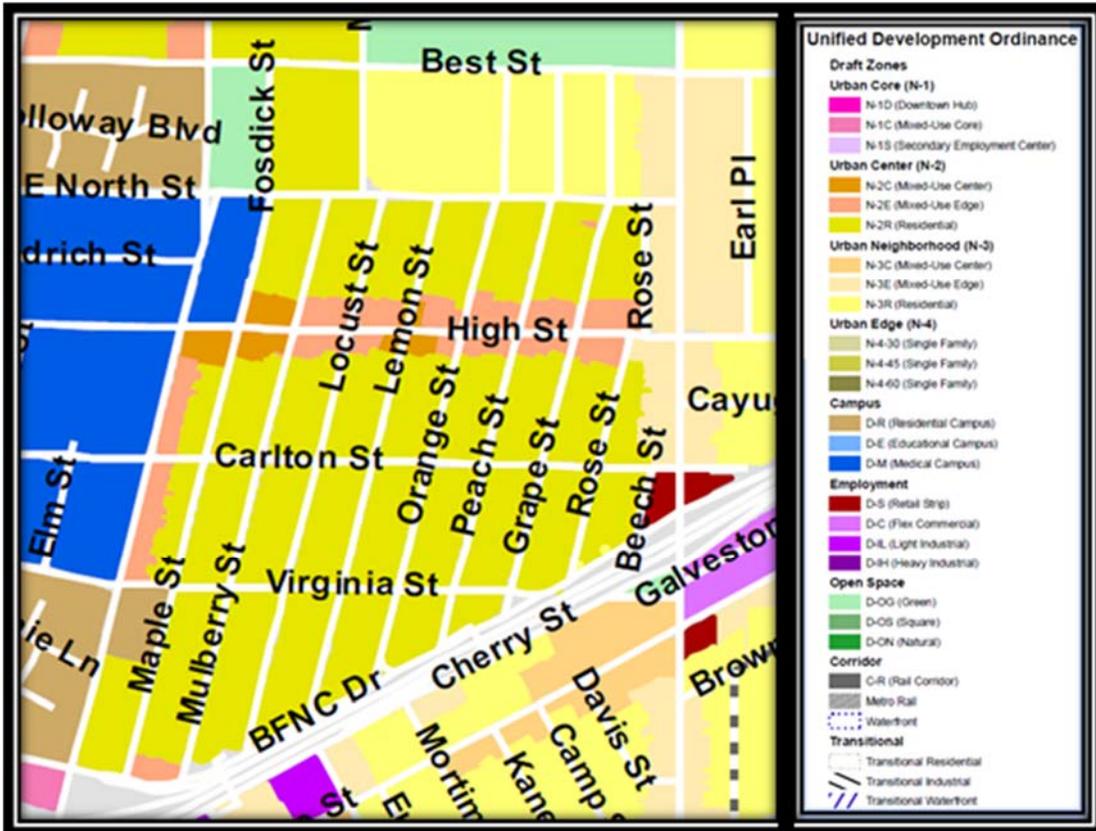


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Figure 2-2 Excerpt of the DRAFT City of Buffalo Green Code Zoning Map

The Fruit Belt Study Area mostly resides in an Urban Center under Green Code Zoning.

Source: http://www.buffalogreencode.com/UDO/files/UDO%20Components/Draft_UDO_Map.pdf, accessed 10/12/2015



2.2 Parking Supply

The basis of a parking supply and demand study is an inventory of the existing parking supply. By documenting the inventory of the parking supply and comparing it to the parking demand, the parking surplus or deficit that exists, or is estimated to exist with future development, can be calculated.

The on-street parking supply information was collected using an on-line GIS tool to identify and locate all signage associated with parking restrictions. The actual number of parking spaces was then calculated by determining the curb length legally available for parking per block, assuming each parking vehicle would require 20 feet of curb length. This calculation accounts for any driveways, hydrants, bus stops, or anything else located within a block that may prohibit parking other than signed restrictions. The inventoried parking occupancy has been categorized into three sub-areas, as stated in Section 1.2:

- Sub-area A - Michigan Avenue to Locust Street
- Sub-area B - Locust Street to Peach Street

- Sub-area C - Peach Street to Jefferson Street

The parking in the Fruit Belt neighborhood for streets running north and south between Goodell Street and North Street is divided with restrictions for the east and west sides of the street depending on the day and time. The alternating parking in the area is targeted for the working weekday, with no restrictions generally before 9am and after 4pm each day. For example, on a Tuesday, parking for most of the north-south streets is prohibited on the east side of the road from 9am to 4pm, but unrestricted on the west side. Before 9am and after 4pm on Tuesdays, there are no restrictions on either side. Therefore, if someone parked on the east side of the road at 8am, it would be allowed, but they would have to move their vehicle to the west side by 9am to avoid a citation. Since the restrictions vary by time of day and day of the week, the available supply for the study area varies. **Figure 2-3** depicts additional parking restrictions in the area.

Depending on how familiar users of the on-street parking areas are, a block may be perceived as full at less than its actual supply. For the purposes of a planning study, a buffer is typically considered to account for inefficient use of curb length or spaces lost during winter months when snow storage affects the available supply. A reduced supply, or the effective supply, of a block is the level of occupancy for optimum operating efficiency. For the purposes of this study, an 85% effective supply is assumed to ensure that a minimum number of available spaces per block are planned into any future planning scenarios.

As stated previously, the available supply within the study area will vary depending on the time or day in consideration. **Table 2-1** highlights the parking supply and effective supply for the study area and its sub-areas on a Tuesday. There is a total of over 1,900 on-street parking spaces within the study area, but with the time and day restrictions, approximately 1,100 are available during the day.

Table 2-1. On-Street Parking Supply – by Sub-Area

Available on-street parking spaces for Sub-areas A, B, and C have been divided into AM, Midday, and PM supply.

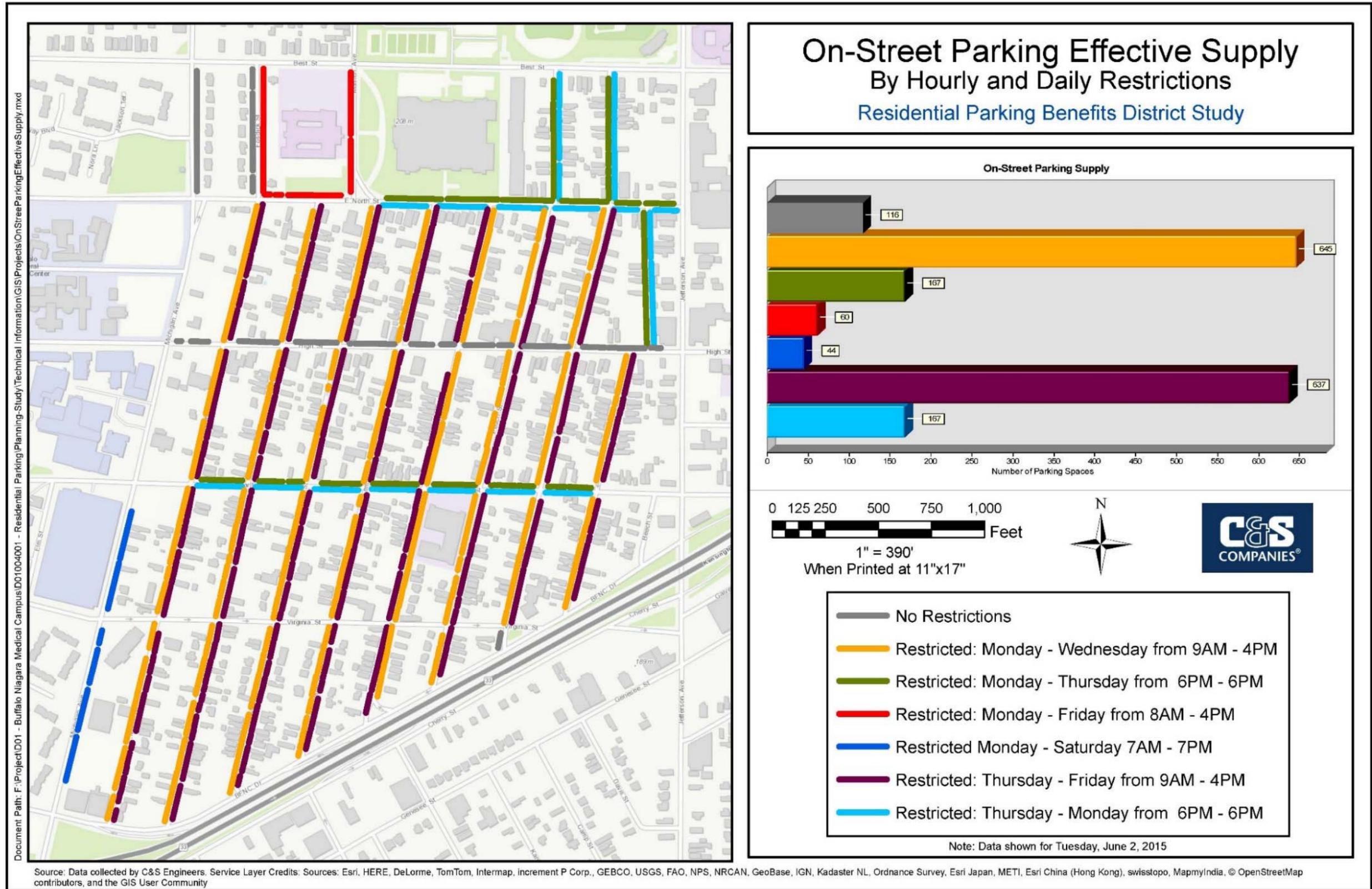
Source: BNMC and C&S data collection, June 2015

	AM (7am - 9am)		Midday (11am – 1pm)		PM (4pm – 6pm)	
	Supply	Effective Supply	Supply	Effective Supply	Supply	Effective Supply
Sub-area A	746	634	350	298	768	653
Sub-area B	677	575	397	337	677	575
Sub-area C	498	423	361	307	498	423
Total Spaces:	1,921	1,632	1,108	942	1,943	1,651

Figure 2-3. On-Street Parking Effective Supply- by Type

On-Street parking in the Fruit Belt Study Area is currently limited under six different restrictions.

Source: BNMC and C&S data collection, June 201



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2.3 Parking Occupancy

The parking occupancy in the study area was documented by conducting vehicle occupancy counts on Tuesday, June 2nd, 2015. Occupancy counts were collected for all on-street parking spaces during an AM time period (7am-9am), a Midday period (11am-1pm), and a PM (4pm-6pm) period. The occupancy counts were then divided into the effective supply for each block to determine utilization rates.

Table 2-2. Occupancy and Utilization

Parking in the Fruit Belt is the most utilized during the midday in Sub-Area A.

Source: BNMC and C&S data collection, June 2015

	AM (7am – 9am)			Midday (11am – 1pm)			PM (4pm – 6pm)		
	Effective Supply	Occupancy	Utilization	Effective Supply	Occupancy	Utilization	Effective Supply	Occupancy	Utilization
Sub-area A	634	273	43%	298	276	93%	653	181	28%
Sub-area B	575	128	22%	337	163	48%	575	83	14%
Sub-area C	423	48	11%	307	45	15%	423	29	7%
Totals:	1,632	449	28%	942	484	51%	1,651	293	18%

As evident in **Table 2-2**, the highest current parking occupancy rate in the study area is 93% during midday hours on a weekday in Sub-area A while the AM and PM period utilization is significantly less throughout the study area. As shown in **Figure 2-4**, 6 blocks within Sub-area A (3 on Maple Street, Fosdick Street, and 2 on Mulberry Street) are over utilized during the midday observation period which means vehicles are parked in spaces less than 20 feet in length or are parking in restricted areas. The block on Locust Street between High Street and Carlton Street and High Street between Locust Street and Lemon Street are also over utilized in Sub-area B during midday as shown in **Figure 2-5**. **Figure 2-6** indicates that the utilization east of Locust Street drops significantly to less than 50% for most blocks. Block by block supply, effective supply, and occupancy information is provided in **Appendix A**.

While the number of parked vehicles were being counted, the last 4 digits of a vehicle's license plate number was recorded by space in order to capture any patterns based on when vehicles were parked where. The following observations were noted and indicated in **Table 2-3**:

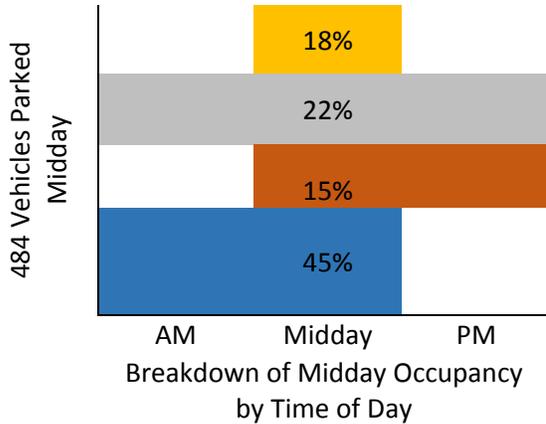
- 218 vehicles were observed during the AM and Midday periods (207 of which were also found in the same parking spot) (45% of Midday occupancy)
- 72 vehicles that observed during the Midday and PM periods (58 of which were also found in the same parking spot) (15% of Midday occupancy)
- 106 vehicles were observed during all three time periods (92 of which were also found in the same parking spot) (22% of Midday occupancy)

Due to the variety of shifts for BNMC member institution employees and the unknown timeframes associated with residential parking demand throughout the day, the split between employee and neighborhood demand could not be determined with this data.

Table 2-3. Breakdown of Midday Occupancy by Time of Day

A majority of vehicles observed in the Fruit Belt remained parked in the same location from the AM period into the Midday period.

Source: BNMC and C&S data collection, June 2015

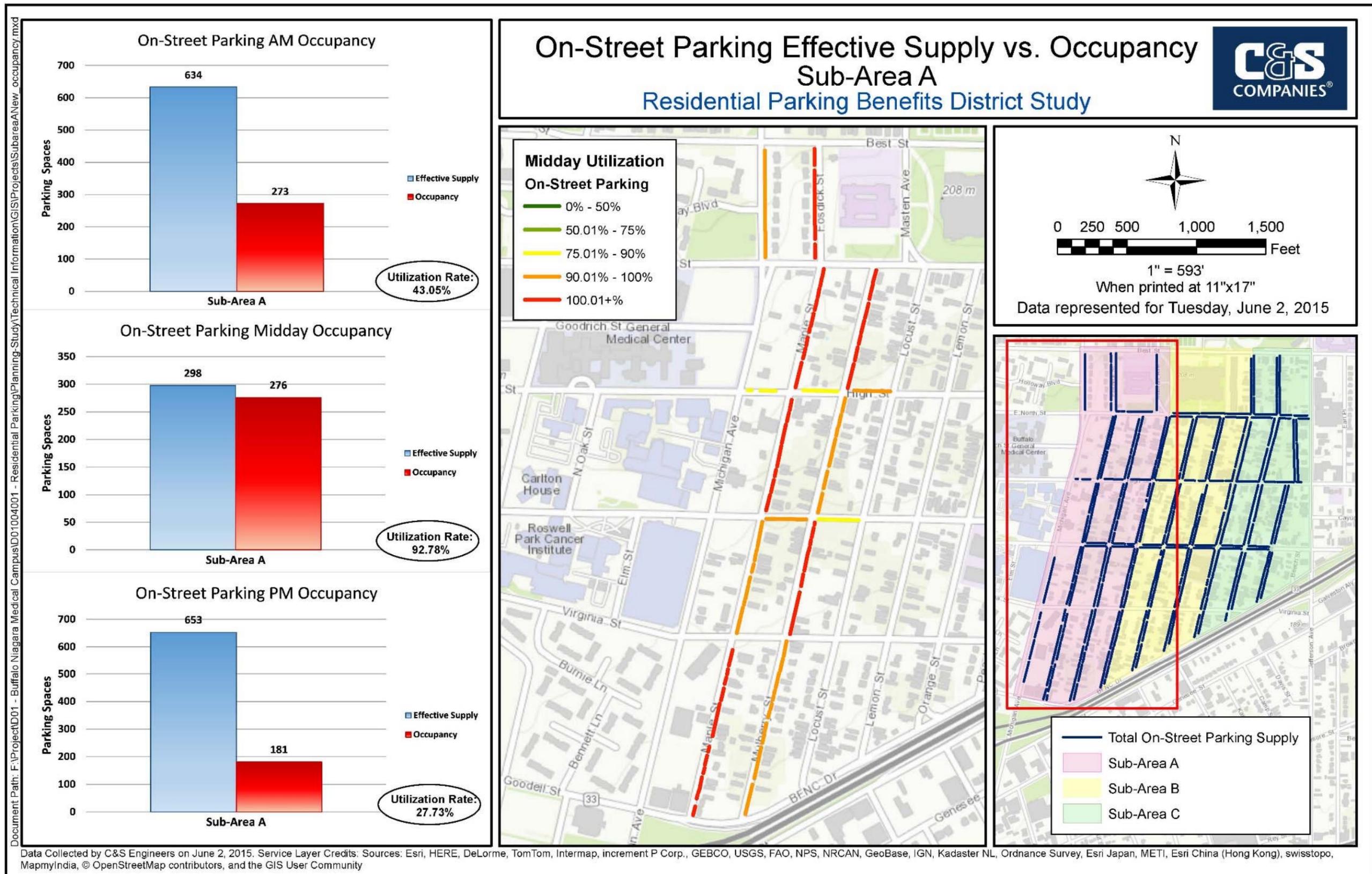


Additional observations were made on Wednesday, November 4, 2015 to estimate the split between employee/campus-based parkers and residential parkers and ensure that parking demand within the study area is comparable based on day of the week or time of year. Results indicated that the midday occupancy observed on the two days were consistent, peak arrival during the AM period occurred between 6:30 – 7:00 AM, and the approximate split between observed parkers was 80% employee demand versus 20% residential demand. Another observation noted was the number of construction workers counted towards employee/campus-related parkers. A summary of this data is also provided in **Appendix A**.

Figure 2-4. Sub-Area A- Effective Supply vs. Occupancy

On-Street Parking in Sub-Area A is 43% utilized in the AM, 93% utilized in the Midday, and 28% utilized in the PM.

Source: BNMC and C&S data collection, June 2015

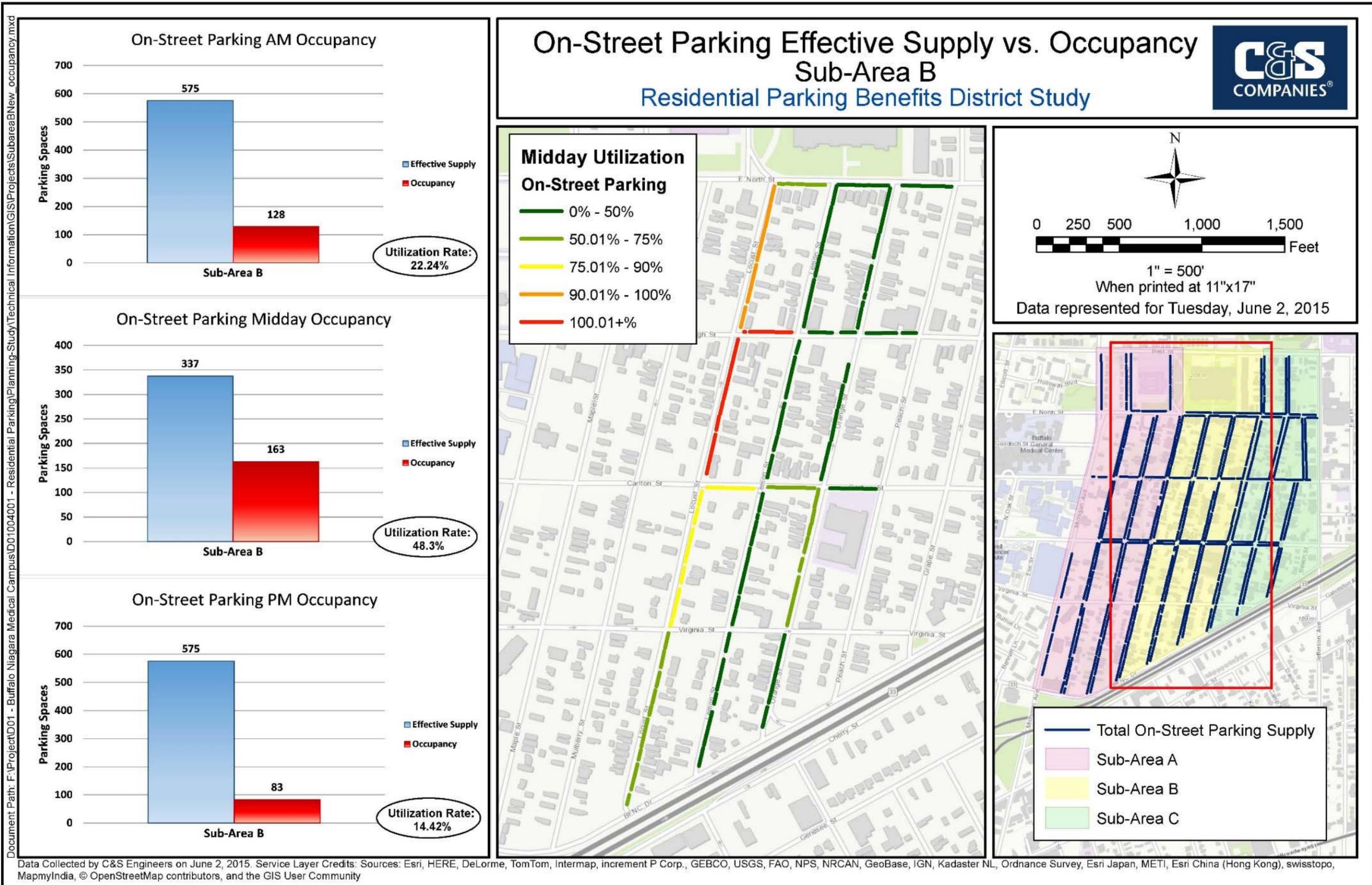


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Figure 2-5. Sub-Area B- Effective Supply vs. Occupancy

On-Street Parking in Sub-Area B is 22% utilized in the AM, 48% utilized in the Midday, and 14% utilized in the PM.

Source: BNMC and C&S data collection, June 2015

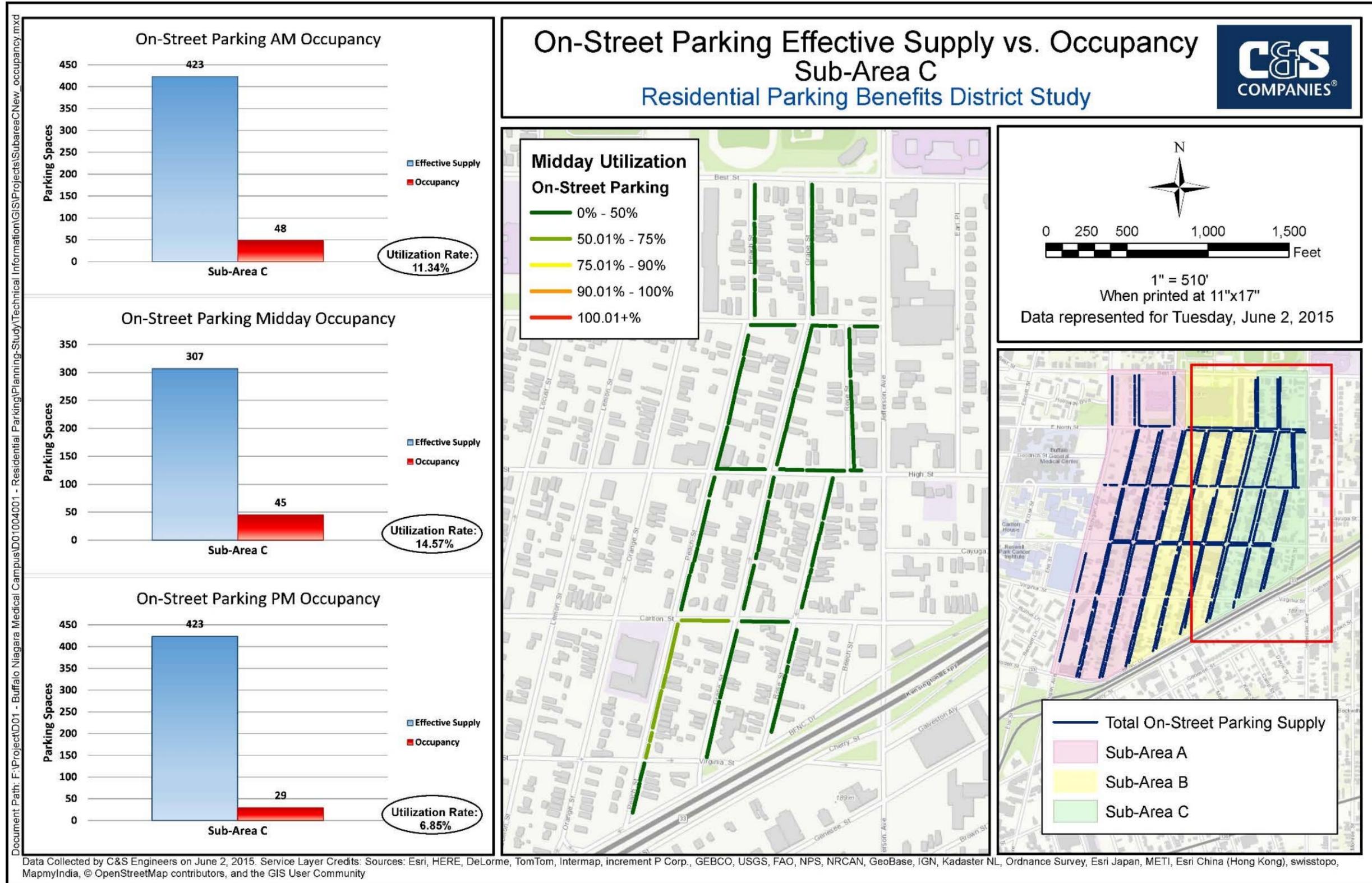


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Figure 2-6. Sub-Area C- Effective Supply vs. Occupancy

On-Street Parking in Sub-Area C is 11% utilized in the AM, 15% utilized in the Midday, and 7% utilized in the PM.

Source: BNMC and C&S data collection, June 2015



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2.4 Surveys

In August and September 2015, the BNMC distributed both online and paper surveys in the Fruit Belt Neighborhood to study parking patterns. In order to best examine the parking needs of the neighborhood, three individualized categories of surveys were distributed: Residential, Business, and Organization. The BNMC conducted numerous outreach initiatives to encourage participation:

- Hosted a table at the Neighborhood Meeting at the Moot Center where hard copies of the surveys were available
- Visited over 200 homes to offer a copy of the survey directly to residents
- Attended National Night Out, the Ellicott District Meeting, and the Open Buffalo Parking Rally to provide hard copies of the survey
- Delivered postcards with the on-line survey link to and also called numerous businesses and organizations in the study area

Although Business and Organization surveys were distributed, no responses were received. See **Appendix B** for detailed survey information.

2.1.1 Residential Surveys

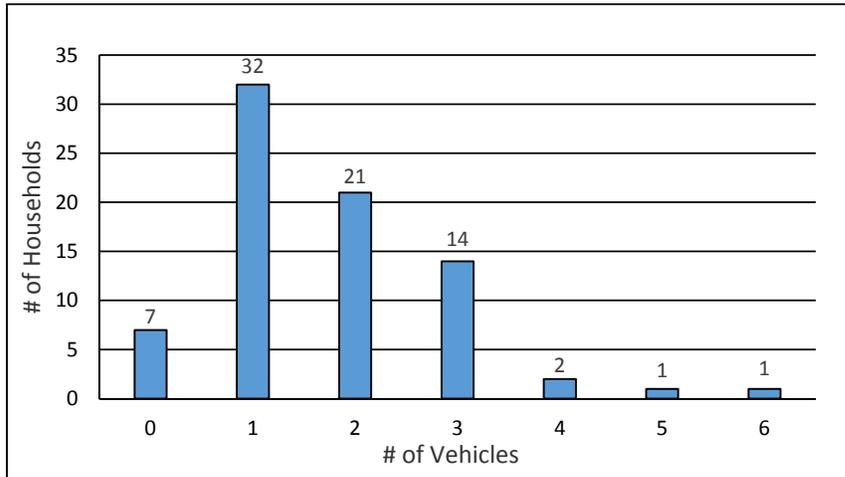
Paper surveys indicating multiple opportunities to personally turn in surveys, the option to return by email, and the opportunity to complete the survey electronically on surveymonkey.com, were distributed to residents of the Fruit Belt. Seventy-eight (78) individuals responded to the survey but the majority of responses came from residents living on Maple Street, Mulberry Street, and Locust Street (Sub-area A). One resident from Lemon Street and Carlton Street also responded. Two responses were from residents living outside of the Fruit Belt and were omitted from the analysis.

All 78 participants responded when asked about how many vehicles their household owns. Based on the responses depicted in **Figure 2-7**, the average residential household in the Fruit Belt Neighborhood owns 1.74 vehicles with a total of 135 known vehicles that belong to respondents that park in the neighborhood.

Figure 2-7. Number of Vehicles per Household

The average residential household owns 1.74 vehicles. .

Source: BNMC and C&S data collection, June 2015

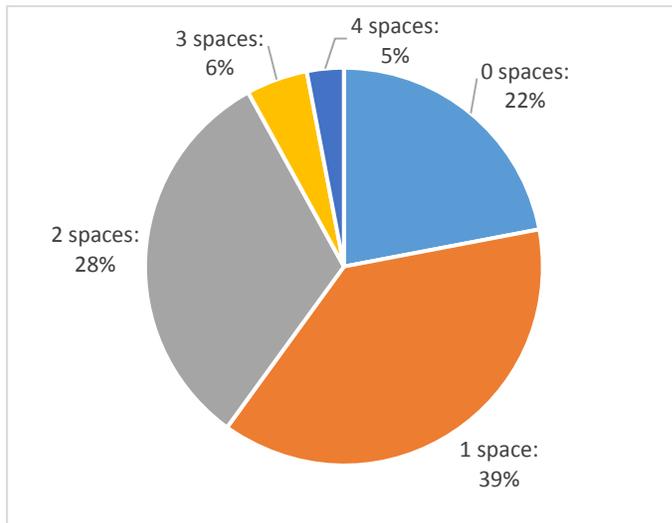


The survey also asked residents whether or not they had parking available on their property for vehicles. Of the 78 responses received, just over 20% reported having neither garage nor driveway space available, as shown in **Figure 2-8**. Almost 60% of respondents who own vehicles indicated currently having sufficient parking available on their property to accommodate the vehicles owned by the household, but this does not account for visitor demands.

Figure 2-8. Off-Street Parking per Household

The average household has 1.35 off-street spaces available.

Source: BNMC and C&S data collection, June 2015



On average, respondents' households have 1.35 off-street spaces available. However, as noted above, the average number of vehicles per household is 1.74. In general, the number of vehicles owned by residential households exceeds the off-street parking supply in the study area. This is

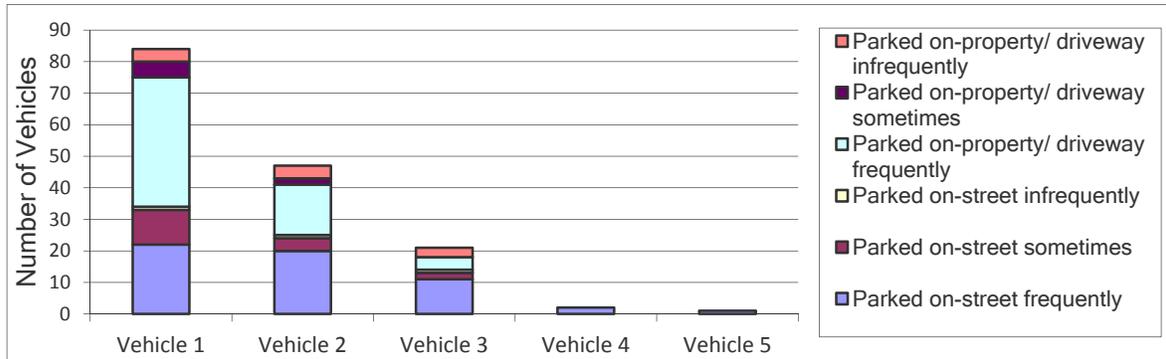
consistent with the survey response that 40% of households do not have sufficient off-street parking to meet their demand.

Residents were also asked where they most often park all of their vehicles. Their options were for both on property/driveway parking and on-street parking with choices of infrequently, sometimes, and frequently. Of the 69 respondents that answered the question, 41 participants (60%) park their first vehicle on their property/driveway frequently. This is consistent with the 60% of respondents who indicated they have sufficient off-street parking to meet their needs. See **Figure 2-9** for a breakdown of household parking.

Figure 2-9. Where do the vehicles owned by your household most often park?

The more vehicles a household owns, the more likely they are to use street parking.

Source: BNMC and C&S data collection, June 2015



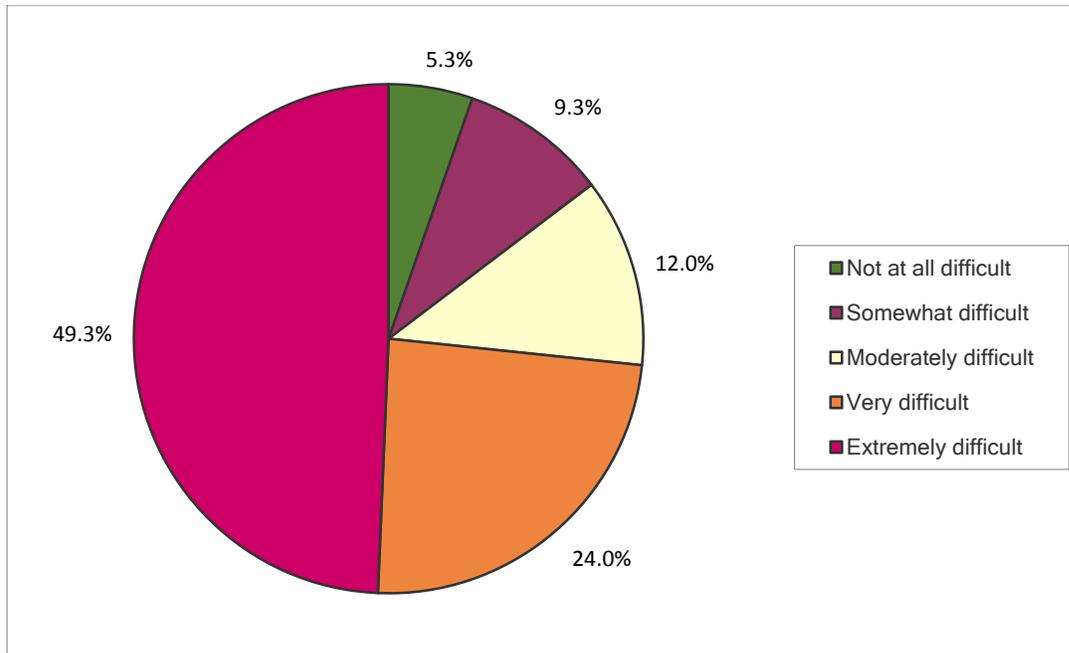
While 60% of the respondents indicated they have sufficient off-street parking for their household needs, 96% of respondents indicate they rely on on-street parking for visitors. This implies that the on-street parking demand per residential household is higher than the numbers indicated based on household-owned vehicles.

Figure 2-10 shows that almost 75% of respondents indicated that it was very or extremely difficult to find on-street parking on their block while 5% indicated there was no problem at all.

Figure 2-10. How difficult is it to find on-street parking on your block?

Almost half of survey participants indicated that it is extremely difficult to find parking on their block.

Source: BNMC and C&S data collection, June 2015



The overwhelming majority, approximately 90%, of survey participants indicated that it is most difficult to find on-street parking during the weekdays between 7am and 5pm. Comparably, only 13% of participants indicated that it is hard to find parking in the evening (5pm to 11pm). Less than 5% of respondents indicated that it is difficult to find parking overnight (11pm to 7am) and on the weekends.

At the end of the survey, respondents were provided the opportunity to comment on how often services (such as homecare, garbage pick-up etc.) were impacted each month, as well as note any other concerns, ideas, or suggestions regarding parking in the neighborhood. Four (4) survey respondents indicated that on-street parking does not impact any services while over 30 indicated that it does on an average of three to four times per week. Comments regarding the category of impact can be divided into: garbage, healthcare access, snow/plowing, school bus access, deliveries, driveways being blocked, and guest access.

Selected parking concerns that were not addressed above are summarized below:

- Ticketing:
 - “Has received parking tickets while unloading groceries.”
 - “Visitors do not visit for fear of getting another parking ticket.”
- Safety:
 - “Safety and security concerns about parking so far from house and walking.”

- “Cars frequently drive wrong way down one-way streets. Dangerous environment for kids.”
- “School bus pickup and drop off is impacted. Kids are dropped off in the street.”
- “Have seen ambulances and fire trucks have difficulty getting too close to houses.”

Selected suggested potential solutions from survey respondents are summarized below:

- Parking Prices:
 - “Medical campus should lower parking rates for employees.”
 - “People who work on the medical campus should pay to park just like the people who work downtown do.”
 - “Need to lower parking price on campus.”
 - “Lower on-campus parking rates. Double parking. Patrols affected by parking.”
- Parking Programs:
 - “Can medical campus give passes? All parkers from out of town.”
 - “Parking Permit Program. Resident only parking zones. Visitor parking zones. Develop Ellicott St. Parking Ramp.”
- Parking Facilities:
 - “I think there needs to be a parking ramp or area for the hospital people to park. I should be able to park on the street reasonably close to my house with no issues.”
- Neighborhood Improvements:
 - “Have an easy access number to call a towing company in case people block the driveway.”

In summary, the survey results provided information from 78 residents, 76 of which live in Sub-area A, between Michigan Avenue and Locust Street. These respondents identified the following:

- There are 1.74 vehicles associated with each household, not including visitors or service vehicles
- The average household includes 1.35 off-street spaces
- While 60% of respondents indicated having sufficient off-street parking to accommodate their vehicles, this does not include parking for visitors since 96% of households depend on on-street parking for visitor demand
- Almost 75% of respondents indicated it was very or extremely difficult to find on-street parking on their block

With minimal or no respondents from Sub-areas B and C, study area-wide assumptions may not be applicable in terms of vehicles per household, number of off-street spaces available, or comments regarding the difficulty of finding on-street spaces on their block. The concerns noted by respondents associated with the lack of or inconsistent enforcement of existing regulations on the roadways, safety of residents, and impacts to emergency services are important to recognize and address in the development and evaluation of alternatives regarding on-street parking.

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Section 3— Future Supply and Demand

In order to anticipate future parking needs, a future demand analysis was conducted for the study area. The future demand analysis takes into consideration the growth anticipated at the BNMC by the year 2020. While development within the study area is expected as a result of development on campus, it is assumed for the purposes of this study that any new residential or commercial development will provide its own off-street parking as per the current City of Buffalo zoning code regulations. The future Green Code, a unified development ordinance that implements the community’s vision for the development for the city², eliminates minimum parking requirements, but it is assumed that the market will still demand off-street parking as part of development within the study area within the timeframe of the analysis for this study. Therefore, the future demand analysis focuses on the potential increase of parking demand associated with employees of the BNMC.

3.1 Demand Ratios

As noted in Section 2.3, there were 484 vehicles parked on-street during the midday observations in the entire study area: 276 in Sub Area A, 163 in Sub Area B, and 45 in Sub Area C. Observations indicated that 80% of those parked in Sub Area A and Locust, Carlton, and High Streets in Sub Area B are associated with the campus. Therefore, approximately 300 vehicles out of the 484 observed are assumed to be associated with the campus, as shown in **Table 3-1**.

Table 3-1. Estimate of Employee-Parked Vehicles

A majority of parked vehicles in Sub-Area A were found to be employee parked.

Source: BNMC and C&S Engineers, Inc.

Number of Parked Vehicles	Sub Area	Number of Employee-Parked Vehicle ^a
484	Total	
276	A	221
163	B	77
45	C	0
		298

a – 80% of Sub Area A and Locust, Carlton, & High Streets in Sub Area B

This number of parked employees was then compared to a number of current BNMC variables provided by the campus in order to determine parking demand ratios: the number of estimated daytime BNMC employees that drive alone to campus, the number of parking spaces on campus, and the number of square feet of campus related facilities. These ratios will be used to predict the number of employees that may park in the study area in the year 2020 based on current parking preferences.

² <http://www.buffalogreencode.com/green-code-components/unified-development-ordinance/>, accessed 10/12/2015.

Table 3-2. Existing Campus-Related Parking Demand Ratios

Demand ratios were created for use in future scenarios based on existing (2015) conditions.

Source: BNMC and C&S Engineers, Inc.

	Existing (2015)	Estimated # of Campus Employees Parked On- Street	Demand Ratios	
Est. Daytime BNMC Employees	8,500			
Drive Alone % ^a	83%			
Daytime BNMC Employees that Drive Alone	7,055	298	0.042	Employee vehicles in the FB/daytime BNMC employees that drive alone
# of Parking Spaces on Campus	7,100	298	0.042	Employee vehicles in the FB/# of parking spaces on campus
Square Feet of Campus Related Facilities	6,500,000	298	0.046	Employee vehicles in the FB/1,000 SF campus related facilities)

a – Existing mode share from Central Business North Transportation Study, BNMC

3.2 Future Demand

When these demand ratios are applied to BNMC conditions projected for 2020, the potential increase for employees parked in the study area ranges from approximately 65 to 120 vehicles.

Table 3-3. Future Demand

Demand ratios predict an increase between 65 to 120 employee vehicles in the Fruit Belt by 2020.

Source: BNMC and C&S Engineers, Inc.

	Future (2020)	% Increase from Existing	Demand Ratios	Employee Spaces in FB	Increase in Employee Spaces in FB
Daytime BNMC Employees	12,000				
Drive Alone % ²	80%				
Daytime BNMC Employees that Drive Alone	9,600	36%	0.042	403	105
# of Parking Spaces on Campus	8,600	21%	0.042	361	63
SF Campus Related Facilities	9,000,000	38%	0.046	414	116

a – Assumed drive alone share reduces by 3% by 2020 due to BNMC Transportation Demand Management initiatives to promote alternative modes of transportation

In order to graphically show how an estimated 65 to 120 additional vehicles would impact the study area, **Figure 3-1** shows the potential on-street parking demand by 2020 with no assumed changes to parking regulations, enforcement, or policies on campus. The following assumptions were made when creating this graphic:

- The additional 120 parked vehicles are assumed to be associated with the campus, therefore, they would park as close to campus as possible.
- The effective supply of each block would be 100% utilized starting with the westernmost roadway (Maple Street) and working eastbound until the future supply was accommodated.
- Any blocks that are currently over utilized were reduced to 100% and any overflow was distributed in adjacent blocks.
- By using the effective supply of each block, a buffer to account for loss of supply due to weather or inefficient parking, as well as allows for some available spaces for neighborhood use.

Based on this future parking analysis and redistribution, on-street parking demand associated with the campus may spread to Lemon Street with parking evident on High, Carlton, and North Street to Orange Street. Another consideration for how far east employees may park is how far they are willing to walk from their parking space to their workplace or final destination. The generally acceptable distance a person is willing to walk from a parking space to their destination is approximately $\frac{1}{4}$ mile. Measuring $\frac{1}{4}$ mile from the easternmost campus buildings, the anticipated limit is similar to the limits of the future estimated demand, as shown in Figure 1-2. As alternatives are developed and evaluated for addressing on-street parking concerns in the study area, this future demand and extent of anticipated utilization will be used as the base condition for consideration.

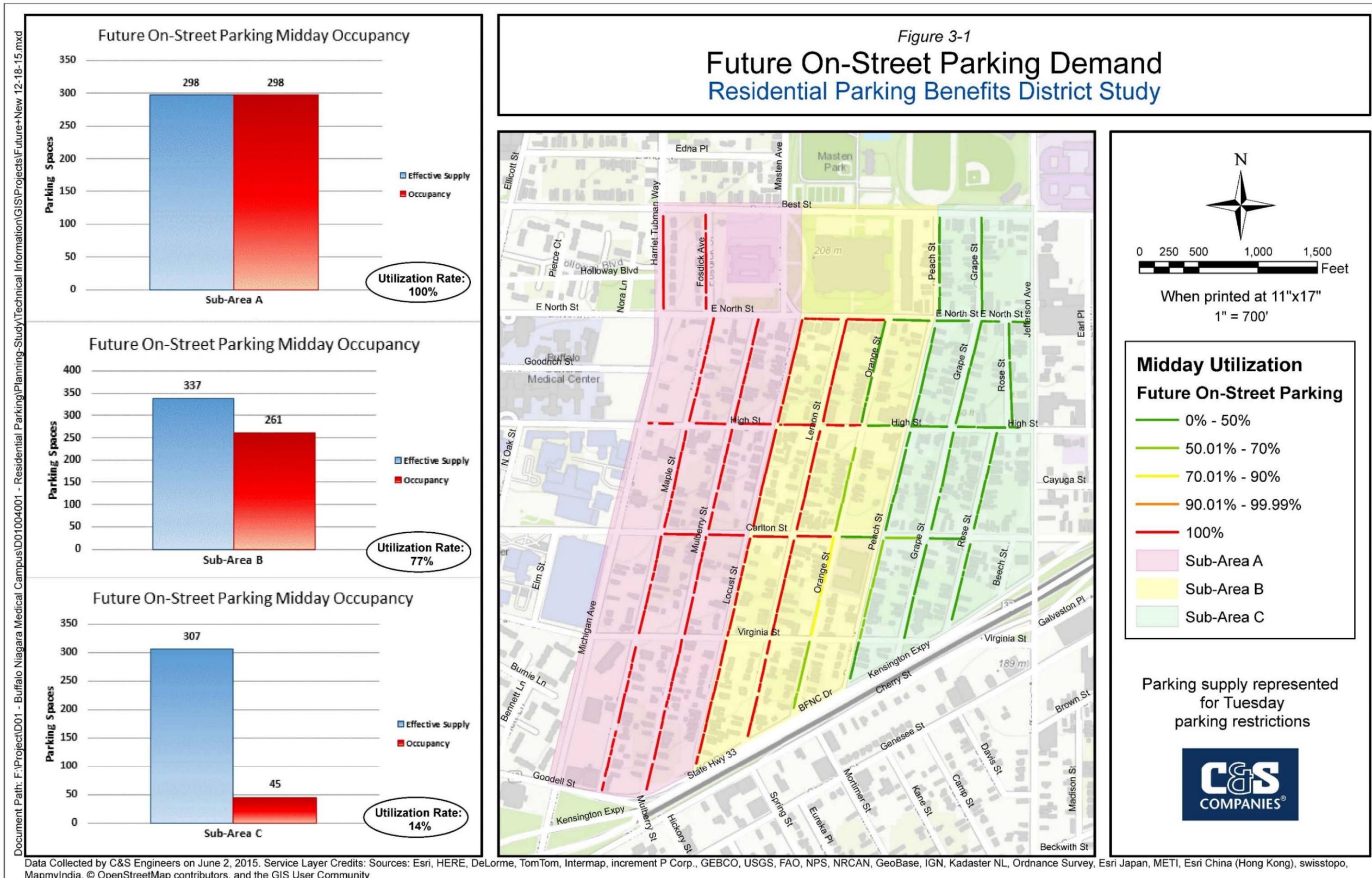
As noted in Section 2.3, construction workers on campus were also part of the employee/campus-related parking demand observed and counted in the study area. The demand associated with this population will fluctuate based on construction activity throughout campus.

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Figure 3-1. Future On-Street Parking Demand

Future on-street midday parking demand is projected to be 100% utilized in Sub-Area A, 77% utilized in Sub-Area B, and 14% utilized in Sub-Area C.

Source: C&S Engineers, Inc.



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Section 4— Strategies

The following section summarizes a number of strategies to manage on-street parking within the Fruit Belt Neighborhood. For each strategy, implementation and qualitative costs, impacts to residents and employees, operation and maintenance, revenue potential, and an example of best practices are discussed.

4.1 General Considerations

While residents noted a concern regarding ticketing of their own vehicles or visitors, it was acknowledged that increased enforcement is needed to regulate illegal parking in the area. Regardless of the recommendations in this report, there is a need for city to allocate the necessary resources for increased parking enforcement. Increased enforcement is an underlying element of all the strategies identified below.

As noted previously, the BNMC regulates on-campus, off-street parking at market rate. One reason for this is to encourage the use of alternatives modes of transportation such as taking transit, walking, biking, or carpooling, thereby, decreasing the number of single-occupant vehicles on campus. The BNMC promotes transportation demand management (TDM) throughout campus and provides the information, tools, and in some cases, subsidies to not drive a vehicle to campus. While there are many benefits to these programs, it has been noted that BNMC institutions offer employees a free ride to their vehicles after hours if they feel unsafe walking alone. While this is a worthwhile and notable service, residents have indicated that employees have used this service to obtain a ride to their vehicles parked in the Fruit Belt. This may prove difficult to enforce or deny the service to the Fruit Belt, but sending notices or posting information to employees that this is not an intended use of the program may limit its use in this way and discourage parking in the neighborhood.

4.2 Striping Spaces

Within the study area, there is adequate curb space to legally accommodate approximately 1,900 on-street parking spaces:

- Sub Area A: 745 spaces
- Sub Area B: 675 spaces, and
- Sub Area C: 500 spaces.

The goal of this strategy is to reduce illegal parking (e.g. blocking driveways or too close to corners) by defining the limits of legal on-street parking spaces.

Implementation

In order to stripe the entire Fruit Belt, 1,900 legal on-street parking spaces will have to be painted. According to the recently updated Buffalo Green Code, parallel parking spaces must be between 7-

8 feet wide and have a depth of at least 18 feet.³ This means that at a minimum, 13,300 feet (2.5 miles) of striping will be needed to cover the entire Fruit Belt if striping is placed so that every space is marked out individually. Another striping option is to stripe out a parking lane and designate where parking is legal. However, costs can be reduced by initiating this strategy only on the streets that are anticipated to be highly utilized in the future, which based on the future analysis scenario conducted, would be all of Sub-Area A and the majority of Sub-Area B.

Impact to Residents

The implementation of this strategy would effectively utilize the available on-street parking supply by reducing inefficiencies in driver parking. This would address concerns regarding parked vehicles blocking their driveways and allow for space for the ease of access of emergency and home-based service vehicles with the proper enforcement. While this strategy would encourage proper parking, it would not deter non-residents and BNMC employees from parking in the neighborhood. As a result, BNMC employees and non-residents would continue to over utilize the on-street parking supply outlined in Sub-Area A and spillover into Sub-Area B, therefore exacerbating the need for residential parking as employment at BNMC increases. Another potential concern with this strategy is it would become less effective during the winter when striping is covered in snow. As a result, parking may be even more limited as they would have to abide by pavement striping rather than parking most efficiently to avoid snow banks.

Impact to BNMC Employees

This initiative would have relatively little impact to BNMC employees. This strategy does not restrict employee parking in the Fruit Belt but provides additional guidance to individuals utilizing on-street parking to park legally and avoid ticketing. As stated above, this initiative could become less effective in the winter.

Operations and Maintenance

This strategy would require continued maintenance as the pavement striping would deteriorate over time through use and element exposure. Maintenance efforts can be minimized by choosing longer lasting pavement paint options.

Revenue Potential

This strategy does not provide potential for revenue.

Best Practice Example

The striping of on-street parking spaces is a very widely practiced method to promote efficient parking practices. On-street striping is already prevalent in many municipalities and is consistent with the vision of New York and the City of Buffalo's Complete Streets Initiative.⁴

³ City of Buffalo Green Code, 2015 Chapter 496- Unified Development Ordinance, Table C: Parking Stall and Drive Aisle Dimensions, accessible at: http://www.buffalogreencode.com/October2015/UDO/Articles/Article-8-Access_&_Parking.pdf

⁴ New York State Department of Transportation, Complete Streets Act- Chapter 398 Laws of New York, 2011, accessible at: <https://www.dot.ny.gov/programs/completestreets>

4.3 Alternate Side Street Parking

Another potential strategy to alleviate parking concerns in the Fruit Belt is the establishment of alternate side street parking restrictions. This strategy would implement a year-round traffic law that dictates which side of the street vehicles can park at a given time per given day. Typically under alternate side street parking, vehicles using on-street parking are required to move from one side of the street to the other at “switchover” times. A switchover time simply designates the time at which it is no longer legal to remain parked on a certain side of the street. The difference compared to what currently exists throughout most of the neighborhood currently is that there would not be times during the day where parking is allowed on both sides of the street.

Implementation

Implementation would require existing signage be replaced with new parking restriction signs to be advantageous to residents and reduce employee parking, the switchover time would need to be inconvenient for a typical work day. A switchover time from 9 to 11AM or 2 to 3PM would require BNMC employees to make a special trip to move their vehicle in the middle of the workday. With the creation of new parking restrictions, residents and others who park in the Fruit Belt, would have to be properly notified of these changes in advance.

Figure 4-1. Alternate Side Street Parking in the Fruit Belt

Parking in the Fruit Belt is currently restricted by alternate side street parking.

Source: C&S Engineers, Inc. October 8, 2015



Impact to Residents

One main outcome of this strategy is that it would make on-street parking in the Fruit Belt inconvenient for BNMC employees. As a result, this strategy would prompt BNMC employees to park elsewhere, reducing parking congestion and effectively managing parking supply. This would

not only open up on-street parking for residents but also improve traffic circulation in the neighborhood and allow for easier access for street cleaning and snow plowing, emergency, and home-based services.

It is expected that this strategy would create an inconvenience for residents and their guests, as they would have to move their vehicles daily in order to avoid ticketing. Those who would be parked elsewhere during this new “switchover” time would not be impacted by this initiative. It is also assumed that any residents who are parked in the Fruit Belt at this time are home and able to move their vehicle(s) accordingly.

Due to limiting legal parking to one side of the road at all times, available parking supply would be less than what is currently available between 4PM and 9AM.

Impact to BNMC Employees

Many streets in the Fruit Belt are already utilizing a type of alternate side parking. Restrictions currently exist on select streets in the Fruit Belt from 9AM to 4PM and 6AM to 6PM that dictate which side of the street vehicles can park on depending on the day of the week. Currently these switchover times are very ideal for BNMC employees, as it allows parking for the completion of a typical workday shift. In other words, under current parking restrictions, employees can park their vehicles in the Fruit Belt in the morning and remain in the same on-street parking space well into the afternoon. Evidence of this can be seen in the license plate data that was collected for all of the observed vehicles in the Fruit Belt during the AM, Midday, and PM period, which found that 45% of all observed vehicles remained parked in the same parking space in the AM and Midday periods. With the implementation of this strategy, parking in the Fruit Belt would become less convenient for employees as it would shift current parking restriction hours. While there would be some employees that would still make the effort to move their vehicles, it is expected that most employees would consider other parking or transportation options.

Operations and Maintenance

This strategy would involve minimal operational effort and maintenance. Signage would have to be maintained if necessary, but this is also true of the signage that currently exists in the Fruit Belt.

Revenue Potential

This initiative does not have any potential revenue associated with its implementation. Although additional revenue would be collected from the increase in parking citations, this revenue would be added to the existing parking citations fund and not be allocated to a fund specific to the Fruit Belt.

Best Practice Example

Alternate side street parking is a practice that is very popular in many New York cities for different reasons. The City of Syracuse has implemented year-round “odd/even parking” in the residential areas adjacent to the University Hill area to address its parking concerns. The University Hill area contains Syracuse University, Upstate Medical University, and a number of other medical and educational institutions. As a result of this mixed use of facilities, there exists a great need for available on-street parking for emergency and maintenance services but on-street parking is

crowded due to a high resident student population density, along with commuters, faculty, and staff looking to avoid off-campus parking fees. The implementation of this program addresses this issue by utilizing “odd/even parking” to ensure parked vehicles do not block the narrow roadways. This practice requires vehicle owners to move their vehicle from 6PM on an odd calendar day to 6PM on an even calendar day to the odd-addressed side of the street. At 6PM on an even day, vehicle owners must switch their vehicles back to the even side of the street. For example, a vehicle parked on February 9th should be parked on the even side of the street until 6PM at which time it should be moved to the odd side of the street. Exceptions to these rules are January 1st, February 1st, June 1st, August 1st, September 1st, and November 1st as these odd calendar days are preceded by another odd calendar day.⁵

4.4 Permit Program

A parking permit program is often used in locations where insufficient parking is available with the goal to make more on-street parking available to residents and their guests. There are two types of parking permit programs: residential only and a combined residential and employee program.

4.4.1 Residential

A residential parking permit program is typically used to alleviate congestion in residential neighborhoods by allowing unrestricted parking to residents while restricting or eliminating parking for non-residents. This program involves the distribution of parking permits to residents and can also incorporate a visitor permit system that would provide a certain amount of parking permits per household to be used for visitors to park without restrictions. Those without permits would have to park under restrictions which would either limit the locations and duration that vehicles can park within the program area or the program would not accommodate vehicles without permits at all. Parking restrictions would be developed to impose time limits (2-4 hours) to limit the impacts of long-term on-street parking by non-residents and to create turnover.

Implementation

In order for a residential parking permit program to operate in the Fruit Belt, there are several steps that must be taken before implementation can begin. Since New York is both a Home Rule and a Dillon’s Rule State, it is required that the designation of a residential parking permit program be implemented at state level legislation. In other words, the State must grant permission to the City of Buffalo to be able to create a local law or ordinance regarding public parking. On a localized jurisdictional level, a parking board, committee, and/or director must be established or an existing municipality must be allocated to administer the program. This administrator would be responsible for making changes to the program, such as the expansion or decommission of restricted areas and managing any possible future changes that the program might undergo. According to 2010 New York Code VAT- Vehicle & Traffic- Title 8- Respective Powers of State and Local Authorities-

⁵ “How does odd/even parking work?,” Parking FAQ’s, Syracuse NY homepage, accessible at: http://www.syr.gov.net/Parking_FAQs.aspx

Article 39- (1640-1646) Regulation of Traffic by Cities and Villages, all residential parking permit system programs are required to abide by certain regulations.⁶ According to these regulations:

- Permits cannot be required on streets where the adjacent properties are zoned for commercial/retail use.
- Motor vehicles that are registered pursuant to Section 404-a are exempt from permit requirements. Motor vehicles that fall under Section 404-a are those with legally issued disabled person or disabled veteran vehicle license plates.⁷
- At least 20% of all of the spaces within the permit area must be made available to non-residents and shall provide for short-term parking for no less than 90 minutes.
- Fees generated from permits should be credited to the general fund of the city.
- The adoption of the ordinance cannot be mandated until a public hearing is held that is similar to that of other public hearings that are pursuant to the municipal home rule law.

In addition to complying with these state-mandated regulations, the administrator would also have to comply with those set forth by the City of Buffalo Zoning Ordinance and any restrictions that the City of Buffalo Green Code might impose.

As noted above, one requirement for a parking permit program is the assurance that at least 20% of spaces in the program area are allocated to short-term, non-permit parking users. Since another requirement is that no spaces in front of commercial or retail uses can be allocated for permit users, meeting the requirement of one, may serve both. **Figure 4-2** shows zoning as well as the available parking supply in the Fruit Belt Neighborhood for the purposes of this study. The figure on the left shows the available supply with no alternate side street restrictions (typical supply available between 4PM and 9AM), while the right shows the typical midday supply. If permit parking is allowed on both sides of the street, the available parking spaces adjacent to commercial/retail uses amounts to approximately 15% or 300 spaces. Since the total supply is approximately 1,900 spaces, an additional 90 spaces would need to be allocated somewhere within the study area to short-term, non-permit parking and approximately 1,550 would be available for permitting. If parking is limited to one side of the road, the available parking spaces adjacent to commercial/retail uses amounts to approximately 18% or 200 spaces out of a total supply of approximately 1,110. In this case, an additional 20 spaces would need to be allocated somewhere within the study area to short-term, non-permit parking and approximately 890 spaces would be available for permitting. Since the allocation of additional short-term parking spaces can be located anywhere within the Fruit Belt, locating these spaces in a low-utilized area would reduce additional parking congestion.

Once the above tasks have been managed, the administrator would have to decide on the specifics of the parking permit program. The administrator would have to determine how many permits can

6 2010 New York Code VAT- Vehicle & Traffic Title 8- Respective Powers of State and Local Authorities Article 39- (1640-1646) Regulation of Traffic By Cities and Villages- 1640-D, accessible at: <http://law.justia.com/codes/new-york/2010/vat/title-8/article-39/>

7 New York State Law- Vehicle and Traffic Law- Title IV- Article 14- Section 404-a, Registration of motor vehicles of severely disabled persons, accessible at: <http://ypdcrime.com/vt/article14.htm%20-%20t404..htm>

be allotted per household, the cost of each permit if there is to be one, and the lifetime of each permit before it must be renewed. If a residential parking permit program is established, a best practice would be to provide sufficient permits to accommodate the average number of vehicles per household.

The decision regarding the cost of parking permits should take into consideration both the potential financial burden on the residents and the costs of maintaining the permit program. Permit costs can be minimized by extending permit lifetimes so that they do not have to be reproduced as frequently. Costs can also be minimized by choosing cheaper permit material alternatives. For example, the administrator may consider a less expensive sticker/decal option rather than a mirror hang tag. Or rather than a sticker/decal option, the administrator might consider a virtual system in which the license plate data for all residents and their visitors is stored in a database that can be checked by parking authorities. Staffing costs can also be minimized by switching to a virtual permit system and allowing residents to register online or by having existing personnel take on this additional task. If a virtual data system approach is not taken, a location must be designated and staffed where residents can purchase and receive their parking permits and provide their proof of residency by means which the administrator deems adequate.

An additional consideration should be whether or not parking exceptions can be made under special circumstances. For example, the administrator may consider creating a type of temporary parking pass that could be provided for large events that draw an above average number of visitors from outside of the Fruit Belt. Special events that could be considered are: funerals, weddings, graduation parties, etc. Providing a service such as this could be advantageous to residents and allow for a more equal quality of life similar to that of other Buffalo residents living outside of a permit program.

Residents would also have to be informed and educated regarding the implementation of this program and existing signage would have to be replaced with new signs indicating parking restrictions and locations.

Impact to Residents

Implementing a residential parking permit program would allow residents to park without restrictions or time limits. As long as a resident has their parking permit displayed and are parked legally, they should have no fear of ticketing. Parking would also still be available to visitors who abide by parking restrictions or who have a visitor parking permit pass. Implementing this program would greatly reduce daytime parking congestion in the Fruit Belt by eliminating employee parking, thus improving the potential for residents to park closer to their homes, creating space to reduce traffic circulation issues, and allowing for the ease of access for emergency, maintenance, and home-based services to residents.

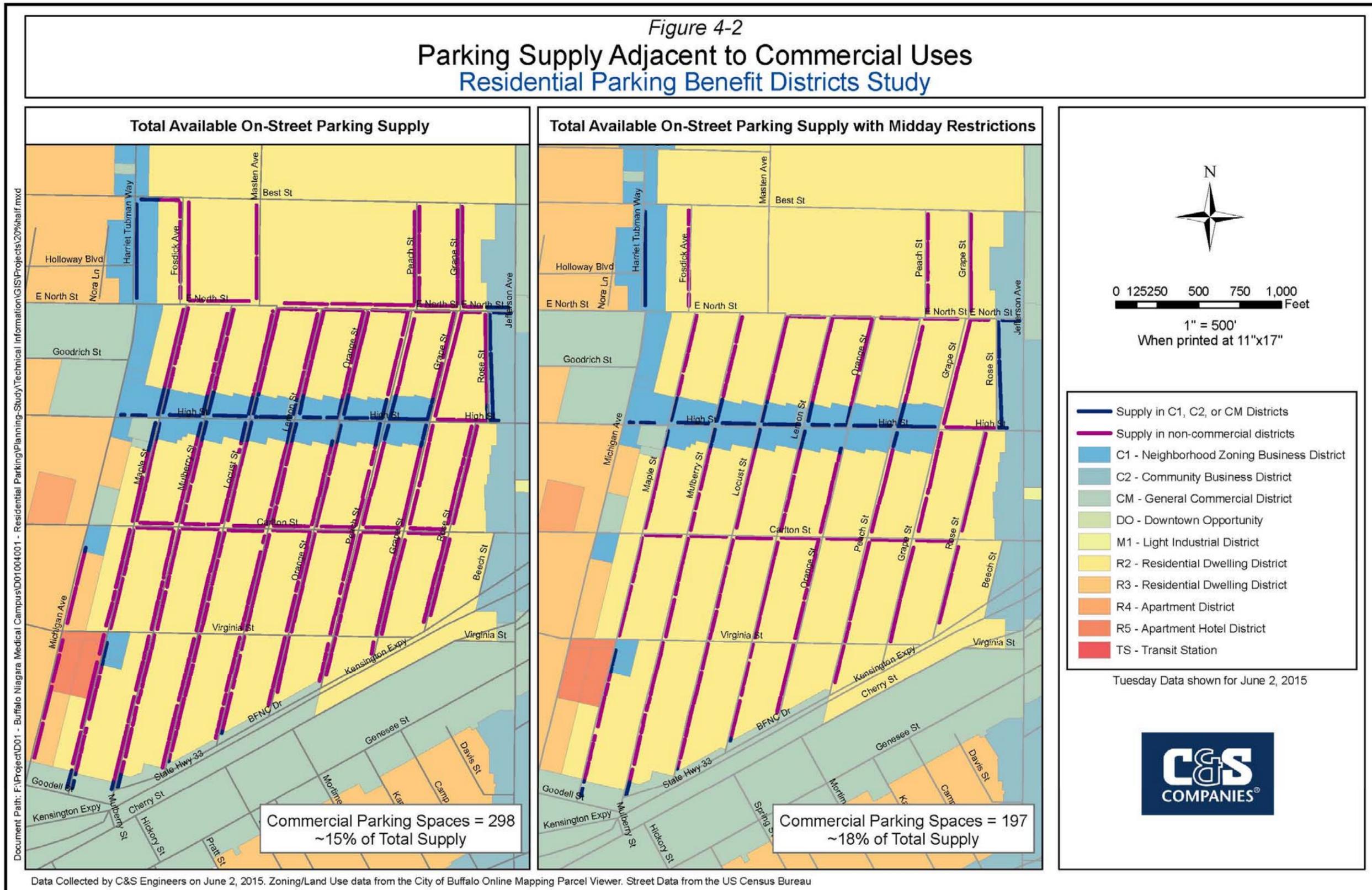
By establishing a residential parking permit program in the Fruit Belt the number of residential and visitor permits distributed per household would be limited. For some residents, the number of vehicles in their household may exceed the available permits. Another concern may be the costs associated with resident and visitor permits. Public comments have indicated a desire for free

parking for residents and their visitors. This may not be possible due to the costs of implementing and operating the program.

Figure 4-2. Parking Supply Adjacent to Commercial Uses

The total available on-street parking supply located in C1, C2, or CM districts must be reserved for short-term non-residential parking.

Source: C&S Engineers, Inc.



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Impact to BNMC Employees

The implementation of this initiative in the Fruit Belt would entirely eliminate on-street long-term employee parking. At most, only 20% of all available on-street parking would be available for short-term (a minimum of 90 minutes) non-resident parking, making long-term parking during a typical work shift infeasible in the program area.

Operations and Maintenance

This initiative would require additional efforts for the City of Buffalo to maintain. A location with fully trained staff would be necessary to distribute the permit passes, handle monetary transactions, and to be available for consumer support and questions. A committee/board/administrator must be available to oversee the program and to induct any changes that are deemed necessary. New signage would have to be maintained. If chosen as a permit material, new stickers/decals or mirror tags would have to be reproduced and purchased yearly. If a virtual database is chosen as an acceptable permit tracking tool, this application would have to not only be developed but also constantly reviewed, updated, and maintained.

Revenue Potential

Revenue potential for this initiative would offset the cost of implementation. One aspect in which the amount of revenue is dependent upon is the cost of production for the permits and their cost to residents and visitors. Establishing diminishing returns would maximize these profits. Revenue is also dependent upon the amount of staff needed to oversee the initiative and whether or not a new facility would need to be designated to house this effort. Additional costs for signage would also affect this program's revenue potential.

Best Practice Example

The residential neighborhoods surrounding Cornell University in Ithaca, New York were subject to parking congestion by commuters to the college using on-street parking in the neighborhoods for daily long-term parking. In order to preserve the character of the neighborhood and mitigate safety concerns and hazards created by this parking congestion, the City of Ithaca developed a residential parking permit program in June 2004.

Under this program, the Board of Public Works of the City of Ithaca designated a residential parking permit zone in the area immediately surrounding the campus. Within this residential parking permit zone, residential parking permit areas were designated as permit blocks consisting of one city-street and its abutting block faces. Additional residential parking permit areas can be added through a petition with the City Clerk's Office, assuming that the proposed permit block meets the following requirements:

- The proposed area is zoned as either an R-1 or R-2 zone as established by the City Zoning Ordinance Section 325-4 of the Municipal Code of the City of Ithaca.
- The petition is signed by at least 51% of the eligible residents in the proposed permit block. Eligible applicants must be at least 18 years of age. In an R-1 zone, no more than one resident per tax parcel shall be allowed to sign the petition. In an R-2 zone, no more

than one resident per dwelling unit or two residents per tax parcel, whichever is fewer, shall be permitted to sign the petition.

- The City Traffic Engineer has conducted a parking survey over two separate days during the average weekday peak hours to establish that at least 75% of the legally available parking spaces in the proposed permit block are being utilized.⁸

In resident permit parking areas, residents with permits are exempt from 9AM to 5PM “no parking” restrictions. “No parking” restrictions are staggered throughout the blocks in order to provide short-term visitor parking.⁹

Annual permits can be purchased by residents living within a residential parking permit area from the City Clerk’s Office of Public Information and Technology Department for a fee of \$45.00. To qualify, residents must provide proof of residency in the form of a lease, driver license, utility bill, etc. and their vehicle registration.¹⁰ The amount of permits that residents can purchase is determined by the city zoning category in which they reside. Residents living in an R-1 zone are allowed access to a maximum of two permits while those residing in R-2 zones are allowed access to two permits per dwelling unit with a maximum of four permits per property. Residents can also purchase up to four \$10.00 visitor passes per year with a limit of 8 passes per property in an R-1 zone and 16 passes per property in an R-2 zone. For non-conforming use properties, those zoned as R-1 will be treated as a single-family house and those zoned as R-2 will be treated as a duplex.¹¹

The implementation of this program had to be approved by New York State Law. This program was implemented under “2010 New York Code Vat- Vehicle and Traffic Title 8- Respective powers of State and Local Authorities Article 39- (1640-1646) Regulation of Traffic by Cities and Villages 1640-E2- Residential parking system in the city of Ithaca in the county of Tompkins” in which the City of Ithaca was granted by adoption of local law or ordinance the allowance to create a residential parking permit system only in the area of the City of Ithaca under restriction.¹²

4.4.2 Residential and Employee

A combined residential and employee parking permit program operates similarly to a residential parking permit program. Under this type of parking permit program, not just residents but also Fruit Belt employees and BNMC employees can purchase parking passes to park in the neighborhood.

8 “Permit System Petitioning,” The City of Ithaca New York webpage, accessible at: <http://www.cityofithaca.org/189/Permit-System-Petitioning>

9 “Hours, System Alternatives & Appeal Process” The City of Ithaca New York webpage, accessible at: <http://www.cityofithaca.org/194/Hours-System-Alternative-Appeal-Process>

10 “Residential Parking Permit System,” The City of Ithaca New York webpage, accessible at: <http://www.cityofithaca.org/187/Residential-Parking-Permit-System>

11 “Permit Allocation,” The City of Ithaca New York webpage, accessible at: <http://www.cityofithaca.org/192/Permit-Allocation>

12 2010 New York Code Vat- Vehicle and Traffic Title 8- Respective powers of State and Local Authorities Article 39- (1640-1646) Regulation of Traffic by Cities and Villages 1640-E2- Residential parking system in the city of Ithaca in the county of Tompkins, accessible at: <http://law.justia.com/codes/new-york/2010/vat/title-8/article-39/1640-e-2/>

Implementation

Implementation, methodology, and costs associated with this strategy is almost identical to that of the one outlined previously in Section 4.4.1. The only difference is that with the allowance of employees to also purchase parking permits, employee parking can be controlled within the neighborhood. By allotting a set amount of permits for employees or by imposing a high enough parking permit price so as to discourage the purchase of them, the Fruit Belt can effectively reduce employee parking. It is up to the City Council to determine a price, if any, that would be attached to employee parking permits.

The number of permits available to employees would be dependent upon the number of residential permits distributed. Also, when choosing the amount of employee parking permits that would be made available, the administrator should consider whether employee permit preferences should be made and if they should be made to Fruit Belt business owners and employees or BNMC employees. Regardless, this decision should take into account the needs of the residents and the future analysis of parking conditions.

Impact to Residents

Under a residential and employee parking permit program, both Fruit Belt residents and employees, as well as BNMC employees can receive parking permits and park without restrictions in the neighborhood. This strategy is advantageous to residents and business owners in the Fruit Belt because it would control the parking supply and reduce daytime parking congestion. However, by providing employees parking permits, there would be less available permits for Fruit Belt residents. Assuming the fees associated with the employee permits are higher, there is a possibility that costs for implementing, operating, and maintaining the program may be covered by this revenue so that resident permits may be at a reduce cost or possibly free of charge.

Impact to BNMC Employees

This alternative does not entirely eliminate the Fruit Belt as a parking location for BNMC employees, but effectively manages it so that it can be shared by employees and residents. BNMC employees would still be able to park in the Fruit Belt, albeit that amount may be limited compared to how many are able to park there currently. Additionally, parking in the Fruit Belt would no longer be free and unrestricted since employees that choose to park there would have to purchase an employee parking permit. Ideally the cost for these permits would be less than market-rate parking on-campus but more than costs associated with alternative modes of transportation, which may not be feasible at this point.

Operations and Maintenance

Operations and Maintenance considerations are identical to those outlined in Section 2.4.1. Staff would also have to be trained on an additional permit type and its associated requirements, restrictions, and fees.

Revenue Potential

There exists a great potential for revenue with this initiative. Revenue would be dependent on all factors outlined in Section 2.4.1 in addition to that associated with the added revenue from employee parking permits. When deciding upon the differences between pricing and restrictions on employee and residential permits, it is important to recognize that a balance must be achieved between demand and revenue so that pricing does not reduce demand such that revenue is no longer significant. Revenue must remain significant in order to fund the permitting process, additional enforcement, and the costs of signage. As stated previously, the subsidy or elimination of fees for residents could be considered if employee permit fees covered operating costs of the program.

Best Practice Example

The Corn Hill Neighborhood is a mainly residential, historic neighborhood in the City of Rochester, New York. Due to its proximity to the downtown Rochester area, there existed a great need for on-street parking during daytime hours for Corn Hill residents and employees due to spillover from nearby land uses. The City of Rochester addressed this issue by implementing a residential and employee parking permit program. In the works since 1983, the City of Rochester obtained state legislative approval for a permit program in the Corn Hill Neighborhood in 1995. Under this program, parking permits are required Monday through Friday from 8AM to 5PM on all marked streets. Permit streets, shown in **Figure 4-3** on the following page, are marked with signs installed and maintained by Monroe County Traffic Engineering.¹³

Under this program, residents and employees of Corn Hill businesses can purchase yearly parking permits for a cost of \$24.00. Residential permits are limited to two per household and come with two additional free visitor passes. Employee permits are limited to one per household. Additional visitor passes can be purchased individually for \$12.00 and are limited to two per household. Residential and employee permits can also be purchased on a pro-rated basis, with prices generally decreasing by \$2.00 for every month they are purchased in closer to their expiration date. For example, for an employee or residential pass for the June 2015 to June 2016 year, passes were \$24.00 in June 2015 but only \$2.00 in June 2016.

Permits are available for purchase at the Parking and Municipal Code Violations Office where an application must be submitted with a picture ID (driver's license, student ID, work ID), an official document showing proof of residency (driver's license, deed, lease, utility bill, letter from landlord, etc.), the current registration for each car that needs a permit, and cash or check available to purchase the permit. Employees seeking a permit do not need to show proof of residency but a letter on the official letterhead of their employer's business stating their employment.

Enforcement for this program is primarily through the Bureau of Parking Program at least twice daily, with additional enforcement through the Rochester Police Department. Only the Director of

13 "Corn Hill Residential Parking Program- The Basics," City of Rochester- Simplified Parking Permit Regulations accessible for download at "Download the Corn Hill Parking Permit Regulations at: <http://www.cityofrochester.gov/parkingspecialprograms/>

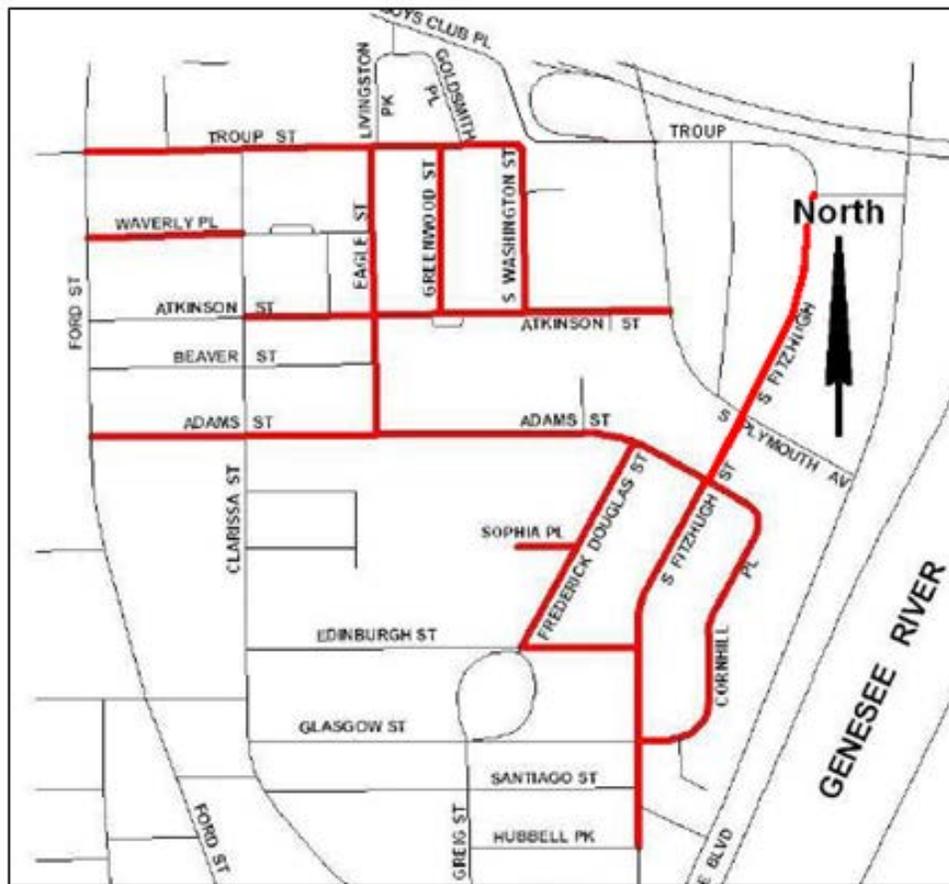
Parking can make changes to the program and the Corn Hill Neighbors Association must be informed in writing.

The implementation of this program had to be approved at the state level and was provisioned for by “Section 1640-B – Residential parking system in the Corn Hill Section of the City of Rochester” under 2010 New York Code VAT- Title 8- Article 39.6 Under this provision, the City of Rochester was granted by adoption of local law or ordinance the allowance to create a residential parking permit system only in the Corn Hill Neighborhood under restriction.

Figure 4-3. Limits of Corn Hill Parking Permit Program

The Corn Hill Neighborhood in the City of Rochester utilizes a parking permit program.

Source: City of Rochester- Corn Hill Parking Permit Program, accessible at: <http://www.cityofrochester.gov/parkingspecialprograms/>



CORN HILL PERMIT STREETS

**PERMIT OR VISITOR PASS REQUIRED FOR ANYONE PARKING HERE DURING PROGRAM HOURS
(8:00 A.M.-5:00 P.M., MON.-FRI.)**

4.5 Parking Benefits District

A parking benefits district (PBD) is a district with metered parking in which funds from its meters are used to make improvements to the district. These improvements can be anything from infrastructure improvements such as bus shelters, bike lanes, sidewalks, or beautification, or public enhancement projects such as murals, landscaping, fountains, and street lights.

Impact to Residents

The addition of available funds to create neighborhood improvements can greatly enhance the quality of a community and provide many safety and health benefits. Parking meter pricing and time restrictions can be used to effectively control on-street parking and create turnover. If incorporated with a parking permit program, residents and/or employees can be exempt from parking meter costs but still reap the benefits of living in the district. With the addition of a parking permit program, residents may still have to purchase permits.

Impact to BNMC Employees

If a PBD is to be implemented in the Fruit Belt, non-residents would be restricted to parking at metered parking spaces for a controlled period of time. As outlined in previous strategies, time limits in the two to four hour range can create turnover for on-street parking and make it easier for BNMC employees to find parking. But this strategy would also make parking in the Fruit Belt less desirable as it would eliminate long-term on-street employee parking. Parking short-term for BNMC employees would also no longer be free and unlimited. However neighborhood improvements can also benefit the health and safety of BNMC employees who choose to continue to park in the Fruit Belt neighborhood.

Implementation

The establishment of a PBD and corresponding parking permit program would require a significant amount of effort. This strategy would require state level permission, and must follow all requirements that are outlined in the 2010 New York Code VAT- Vehicle & Traffic- Title 8- Respective Powers of State and Local Authorities- Article 39- (1640-1646) Regulation of Traffic by Cities and Villages (also seen in Section 2.4.1 of this memorandum). Meter duration in particular must be carefully monitored to comply with these requirements. In addition, according to New York State Law- Vehicle and Traffic Law- Title VII- Article 32- Section 1203-h, metered parking waivers should be considered, as necessary, for residents of the City who are considered disabled according to New York state requirements.¹⁴

This strategy would next require the initial cost for the implementation and maintenance of parking meters, Pay and Display stations, or Pay by Plate Stations. Currently the City of Buffalo has over 3,900 operational parking meters and machines that take in a revenue of \$1.8 million before expenses. These meters cost \$1.00 per hour and are in effect from 8AM to 5PM Monday through

¹⁴ New York State Law- Vehicle and Traffic Law- Title VII- Article 32- Section 1203-h- Metered parking waiver for certain disabilities, accessible at: <http://ypdcrime.com/vt/article32.htm#t1203-h>.

Saturday, with Sundays and legal holidays excluded. Legal holidays include New Year's Day, Decoration Day, Fourth of July, Labor Day, Thanksgiving Day, and Christmas Day.¹⁵

Operations and Maintenance

Operations and maintenance for this strategy are significant compared to the other strategies noted. In addition to the maintenance and operations needs outlined for a parking permit program in Section 2.4.1, there would also be a need for pay station/meter monitoring, meter collection, and meter maintenance. However, these maintenance and operational needs can be minimized with pay by plate or pay by space phone/on-line systems.

Revenue Potential

Of all of the strategies proposed, this initiative creates the best scenario for revenue potential since revenue can be collected from both parking permit passes and parking pay stations/meters. Revenue potential for this strategy is largely dependent upon staffing requirements and salaries, the cost of parking permits, and the type of parking pay stations/meters implemented.

According to the City of Buffalo Parking Department, new pay meters with credit card and smart phone capabilities are currently being tested in parts of the City. However, these meters are expected to be reserved for high volume areas due to their expensive costs. A cheaper alternative, Pay and Display stations, cost the City approximately \$10,000 each. The most cost effective solution, mechanical pay stations, cost the City approximately \$135 each and have a 20 year lifespan.¹⁶ Although mechanical parking meters are the least expensive alternative, Pay and Display stations can be used to reduce street clutter, a goal that is outlined in the Downtown Buffalo Infrastructure and Public Realm Master Plan of November 2014.¹⁷ Pay and Display Stations also serve as a better alternative due to their more versatile payment options and because they are generally of a higher security caliber and less susceptible to being broken into.

Another additional cost associated with this initiative is the removal of existing signage and the implementation of new signage. Although revenue from parking permits, residential visitor passes, and meters can be used as revenue, there is still the possibility that pricing may reduce demand such that revenue is not significant. For this reason, a best practice method to be considered is to adjust parking time limits and pricing based on demand.

¹⁵The City of Buffalo- Division of Parking Enforcement, Most Frequently Asked Questions webpage, accessible at: https://www.ci.buffalo.ny.us/Home/City_Departments/ParkingDepartment/Parking_Enforcement/MostFrequentlyAskedQuestions

¹⁶ "Days of feeding the parking meter in Buffalo may be over," The Buffalo News, City and Region Section, by Susan Schulman, 09-27-15, accessible at: <http://www.buffalonews.com/city-region/buffalo/days-of-feeding-the-parking-meter-in-buffalo-may-be-over-20150927>

¹⁷ Buffalo Urban Development Corporation, Downtown Buffalo Infrastructure and Public Realm Master Plan of November 2014, Accessible at: <http://www.buffalourbandevelopment.com/budc-downtown-development>

Figure 4-4. Pay and Display Station vs Meters

Pay and Display Stations and Meters are two options available to meter commercial parking.

Source: Left - "Parking, meters, technology," *Bhamarchitect's Blog* Sept. 19, 2011

Right - "Days of feeding the parking meter in Buffalo may be over," *The Buffalo News, City & Region*, by Susan Schulman News Staff Reporter, Sept. 27, 2015



Best Practice Example

The City of Austin, Texas is perhaps one of the most well-known locations in the country with a PBD. In July of 2005 in particular, this method was implemented as part of a pilot program in the West Campus Neighborhood to control spillover parking from nearby land uses such as the University Campus and commercial shopping areas. Due to this neighborhood containing many non-typical households in the form of student housing, there existed a high demand for on-street parking, a demand that was only exacerbated due to the City's issuance of a land-use plan in 2004 that allowed developers to build taller and denser buildings in the neighborhood that offered community services in return. In October 2011, the PBD became a permanent program and in 2015, plans to add additional parking pay stations began.

In this particular district, annual parking permits are available to purchase for \$20.00 to residents who live in a building that was built in or before 1959. The reason for this restriction is that buildings built before this year were not required to have parking available for its residents. Residential and guest permits can be obtained by applying at the City of Austin Department of Transportation (DOT). Parking meters are in effect from 8AM to 6PM Monday through Wednesday, 8AM to

12AM Thursday through Friday, and 11AM to 12AM on Saturday. Metered parking is limited to 3 hours and has a fixed rate of \$1.00 per hour.

In the City of Austin, any community may request to apply for the creation of a PBD in their neighborhood. At least two weeks prior to application, both a meeting with the Director of the Austin Transportation Department and a community meeting are required. The development of a community meeting must include the notification of all neighborhood organizations within the district and within 1,500 feet of the proposed district, the placing of two signs regarding the notification of the meeting on each block face within the proposed district, and the distribution of flyers in the proposed district. Next the Director would establish a list of submittal requirements including: the boundaries of the proposed district, a justification for the proposed district, a visual representation of the proposed paid parking spaces, the identification of other requested parking management tools, proposed improvement projects to be funded (including an estimated timeframe for completion and expected project sustainability), a copy of sign-in sheets from community meetings, and any voting results that may have occurred at the community meeting. Once all of these requirements are met, the Director would set up a public hearing with the Urban Transportation Commission within 60 days of the application submission. The applicant, any property owners or utility account addresses located within the proposed district or within 500 feet of the proposed district, and any neighborhood organization boundaries within 1,500 feet of the proposed district are required to be notified for the public hearing. If the PBD is approved and passed, appropriate notification must be provided for all involved parties.¹⁸ A district shall remain in existence until each improvement identified by the ordinance in creating the district is complete, unless terminated earlier by the council. Earlier termination can occur if metered spaces do not generate more than the amount needed to pay annual expenses.

All districts created must include at least 96 parking spaces as this is the minimum amount of spaces needed to pay for maintenance and operational fees. 51% of the funds from the paid parking spaces that is in excess of the cost of maintenance and operation would go to the district and is set aside for future district improvements. Funds may also be used in conjunction with other city funds for neighborhood improvements within the district. Eligible improvements include: curb ramps, bicycle lanes, sidewalks, traffic-calming measures, plazas, landscaping, and increased maintenance.¹⁹

4.6 Strategy Summary

Each of the strategies described above serve a purpose and have their advantages and disadvantages in terms of how they address the parking concerns within the Fruit Belt Neighborhood. **Table 4-1** on the following page highlights the key elements of each strategy for easy reference.

¹⁸ Ordinance No. 20111006-053, City of Austin City Code, An Ordinance Amending Title 12 of the City Code to Add Chapter 12-6 Establishing a Parking Benefit District Program, Chapter 12-6. Parking Benefit Districts,” accessible at: <https://austintexas.gov/sites/default/files/files/Transportation/pbd-ordinance.pdf>

¹⁹ Parking Benefit District-Texas Parking PowerPoint, accessible at: <http://www.texasparking.org/links.html#1>

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Table 4-1. Alternative Strategy Summary

Five alternative strategies have been developed as possible solutions to manage parking in the Fruit Belt.

Source: C&S Engineers, Inc.

Strategy	Striping Spaces	Alternate Side Street Parking	Residential Parking Permit Program	Residential & Employee Parking Permit Program	Parking Benefit District
Description	Stripe parking spaces to clearly identify legal parking areas	Allow parking on one side of the street only with a designated switchover time between 10AM and 2PM	Allow unrestricted parking to resident permit holders while limiting on-street parking for non-residents	Allow unrestricted parking to resident & employee permit holders while limiting on-street parking for those without permits	Establish 'metered' on-street parking in the area with or without a resident permit program where proceeds go into a fund for future improvements in the area
Considerations	<ul style="list-style-type: none"> Requires increased enforcement May not be efficient during winter months (snow coverage) 	<ul style="list-style-type: none"> Requires increased enforcement 	<ul style="list-style-type: none"> Requires increased enforcement Ensure 20% of parking in the area is available as short-term parking for any users May need a majority of residents in favor of program Need to consider if parking will be limited to one side of the street at a time For non-residents, parking would be limited to 2-4 hour parking 	<ul style="list-style-type: none"> Requires increased enforcement Ensure 20% of parking in the area is available as short-term parking for any users May need a majority of residents in favor of program Need to consider if parking will be limited to one side of the street at a time For non-permit holders, parking would be limited to 2-4 hour parking Employee permit fees should be less than market-rate parking on campus but more than TDM strategies Employee permit fees may subsidize resident permit fees 	<ul style="list-style-type: none"> Requires increased enforcement Ensure 20% of parking in the area is available as short-term parking for any users, if applicable May need a majority of residents in favor of program May include an employee permit component to the program Need to consider if parking will be limited to one side of the street at a time For non-permit holders, parking would be limited to 204 hour parking with a fee Need to consider best 'metering' options
Implementation & Cost	<ul style="list-style-type: none"> Low cost implementation with minimal maintenance No cost to residents/employees Will require pavement striping 	<ul style="list-style-type: none"> Low cost implementation with minimal maintenance No cost to residents/employees Will require new signage 	<ul style="list-style-type: none"> Pass State legislature City of Buffalo will administer program Establish limits of program & how many permits to allocate Market & educate the residents on program Will require new signage Costs to implement & operate the program will be based on any applicable fees, staffing, and materials (permits) 	<ul style="list-style-type: none"> Pass State legislature City of Buffalo will administer program Establish limits of program & how many permits to allocate to residents & employees Market & educate the residents on program Will require new signage Costs to implement & operate the program will be based on any applicable fees, staffing, and materials (permits) 	<ul style="list-style-type: none"> Pass State legislature – if a permit program is included City of Buffalo will administer program Establish limits of program & how many permits to allocate to residents & employees, if applicable Market & educate the residents/public on program Will require new signage Will require on-street payment system Costs to implement & operate the program will be based on any applicable fees, staffing, and materials (permits/payment systems)
Revenue Potential	No revenue potential	No revenue potential	Low-medium potential to generate revenue; based on permit fees versus program costs	Medium potential to generate revenue; based on permit fees versus program costs	Medium-High revenue potential; based on implementation & program costs versus permit/parking fees
Impacts	<ul style="list-style-type: none"> Will not deter employee parking or reduce demand Will not guarantee available space for residents where desired Will reduce conflicts with driveways and no parking areas 	<ul style="list-style-type: none"> Will significantly reduce long-term employee parking Will reduce available supply during overnight hours Will require residents to move on-street vehicles at switchover time Will not guarantee available space for residents where desired Will reduce congestion in the area 	<ul style="list-style-type: none"> Will eliminate long-term employee parking May reduce available parking for residents depending upon number of permits issued May result in permit fees for residents Will not guarantee available space for residents where desired Will reduce congestion in the area 	<ul style="list-style-type: none"> Will regulate/limit long-term employee parking May reduce available parking for residents depending upon number of permits issued May result in permit fees for residents Will not guarantee available space for residents where desired May result in revenue Will reduce congestion in the area 	<ul style="list-style-type: none"> Will eliminate or limit long-term employee parking, based on program details May reduce available parking for residents depending upon number of permits issued May result in permit fees for residents No free parking in the area Will not guarantee available space for residents where desired May result in revenue Will reduce congestion in the area

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Table 4-2 summarizes the alternatives for comparison considering the ease and cost of implementation, costs and impacts to residents, the potential reduction in BNMC employee parking demand, operations and maintenance efforts, and revenue potential.

Table 4-2. Alternative Strategy Summary Matrix

The alternative strategies have been categorized by level of difficulty for selected characteristics.

Source: C&S Engineers, Inc.

	Alternatives				
	Striping Spaces	Alternate Side Street Parking	Permit Program: Residential	Permit Program: Residential & Employee	Parking Benefits District
Ease of Implementation					
Cost of Implementation					
Cost to Residents					
Impact to Resident Supply					
Reduce BNMC Employee Parking					
Operations & Maintenance Effort					
Revenue Potential					

- Low/easy 
- Medium 
- High/difficult 

The strategy with the least impacts to residents with the highest potential to reduce BNMC employee parking in the neighborhood with the least implementation, operations, and maintenance effort is alternate side street parking. The most expensive strategy with the highest revenue potential for the neighborhood is the establishment of a parking benefits district with a residential and/or residential and employee parking permit program. A residential parking permit program would eliminate BNMC employee parking within the permit area, but the residents would most likely have to pay for parking permits to raise revenue to implement and operate the program. A residential and employee parking permit program would limit employee parking, possibly generate enough revenue from employee permits to fund the program and subsidize resident permits, but would most likely not generate additional revenue for the neighborhood.

4.7 Preferred Strategies

Following the review of the alternative strategies presented in Section 4.6, it was identified through consultation with the Project Steering Committee (PSC) and the Division of Parking Enforcement for the City of Buffalo, that a combination of strategies would be best suited to meet the needs of the Fruit Belt. Particular strategies that were encouraged included elements of a Residential and Employee Parking Permit Program, a Parking Benefits District, and Alternate Side Street Parking with the potential for the striping

of on-street parking spaces. All combined alternatives that were examined are listed below. A developed comparison summary table and matrix for each combined alternative is documented in **Appendix D**.

- **Combined Alternative 1:** A single fee structure is used for employee and residential permits. Sides are not designated for residents or employee and a generic employee or residential permit can be used to park anywhere in the Fruit Belt.
- **Combined Alternative 2:** Employee permits would be priced differently per street with permit prices decreasing by street for each street east of Michigan Street. Sides are not designated for residential or employee parking but permits are designated by street.
- **Combined Alternative 3:** A single fee structure is used for employee and residential permits. One side of the street is designated for employees while the opposing is designated for residents.
 - **3a:** This alternative does not incorporate alternative sides so that employee and residential parking sides remain constant.
 - **3b:** This alternative incorporates alternating sides so that employee and residential parking sides switch depending on the calendar day.
- **Combined Alternative 4:** Employee permits would be priced differently per street with permit prices decreasing by street for each street east of Michigan Street. One side of each street is designated for employees while the opposing is designated for residents.
 - **4a:** This alternative does not incorporate alternating sides so that employee and residential parking sides remain constant.
 - **4b:** This alternative incorporates alternating sides so that employee and residential parking sides switch depending on the calendar day.
- **Combined Alternative 5:** Employee permits would be priced differently per street with permit prices decreasing by street for each street east of Michigan Street. One side of each street is designated each day for permit parking with the supply divided between employee and residential permits. This alternative incorporates alternating sides so that parking sides switch depending on the calendar day.

All combined alternatives were examined by determining the amount of residential and employee permits that could be provided under each. Assumptions used for the purposes of comparison included:

- The study area in which permits would be required is bordered by Goodell Street and Best Street and permits would be designated from Michigan Street to Orange Street. This is under the assumption documented in **Figure 3-2** that the average BNMC employee would not be willing to walk farther east than Orange St.
- Residential permits would be free for qualified residents and residential permit holders would be able to park anywhere within the study area
- Permits would not be required on weekends
- For alternatives in which employee permits are designated by street, if an employee permit holder is unable to find parking on the street for which their permit is designated for, they would be able to park on any street to the east of it.

As seen in **Figures 2-1 and 2-2**, although most of the parcels located within the Fruit Belt and their corresponding on-street parking spaces are zoned as residential, some of the available on-street supply is

located in commercially zoned areas. As outlined in **Section 4.4.1**, under a residential parking permit program in New York State, “at least 20% of all of the spaces within the permit area must be made available to non-residents and shall provide for short-term parking for no less than 90 minutes.”²⁰ Inventory of the study area determined that approximately 16% (198 parking spaces) of the total on-street supply falls within commercially zoned areas and must be metered. This leaves approximately 43 additional on-street parking spaces within the study area that must be designated for short-term parking in the form of meters.

Combined alternatives were also compared under two scenarios to determine the amount of employee and residential parking permits that would be needed for each. These scenarios involved comparing the amount of residential parcels with and without driveways in the Fruit Belt to the amount of on-street residential spaces that could be provided under these combined alternatives. Detailed comparisons for these scenarios under each alternative are available in **Appendix D**.

Ultimately, after all of the above analysis, it was identified that Combined Alternative 4b and Combined Alternative 5 were the two final preferred alternatives. Possible representations of these alternatives are represented in **Figures 4-5 and 4-6**.

Since Combined Alternative 5 (Option 2: One-Side Alternating Parking) limits the most amount of available on-street parking compared to all other alternatives presented, analysis was undertaken to ensure that it would meet the existing residential demand. Using the current 20:80 ratio of residents versus employees split of vehicles parking in the Fruit Belt (that was outlined in **Section 3.1**) the midday occupancy of residential vehicles was compared to the smallest on-street supply by half blocks. This analysis determined that the available residential supply that would be provided under this alternative would be sufficient to meet the existing residential demand on all streets except for High Street.

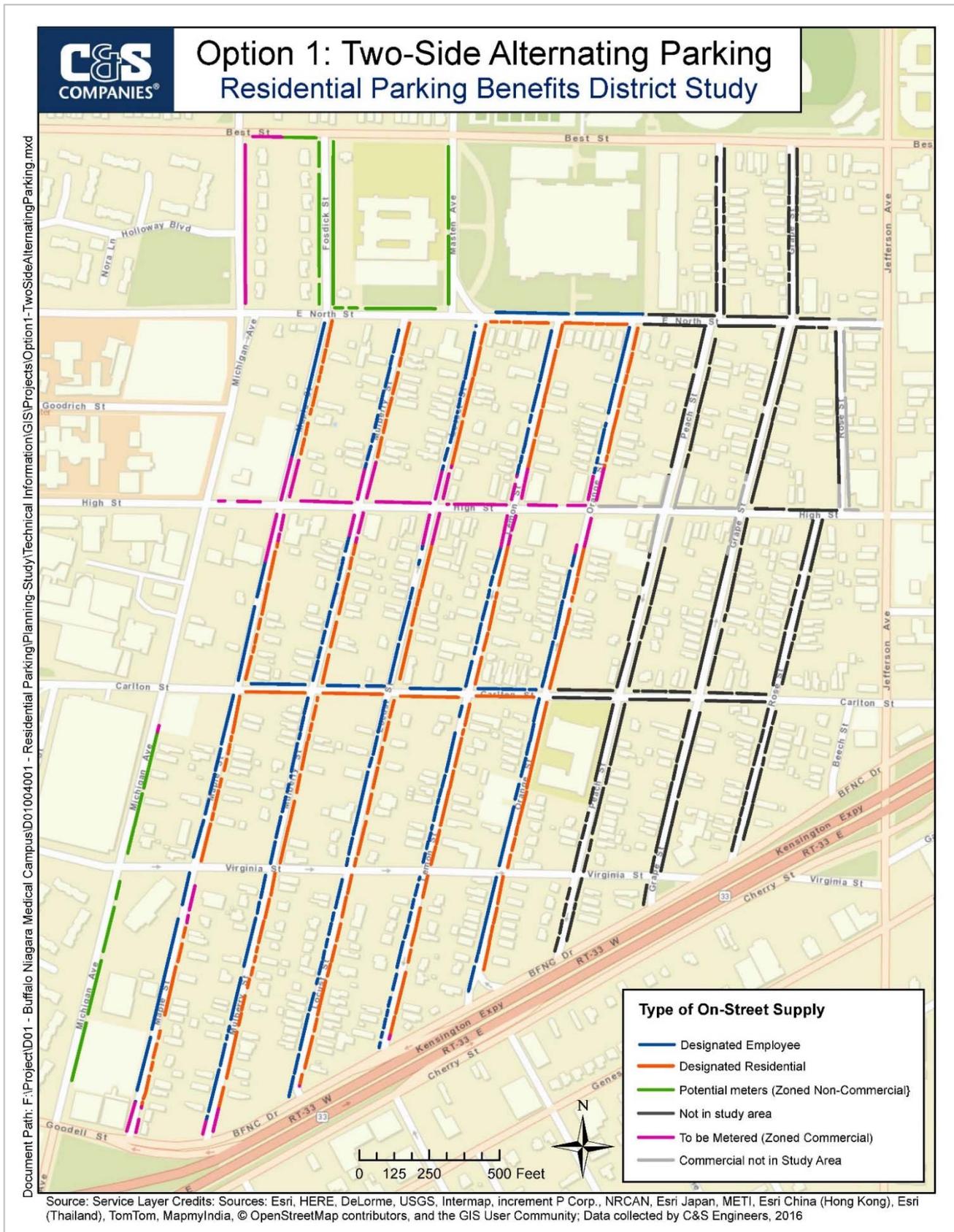
20 2010 New York Code VAT- Vehicle & Traffic Title 8- Respective Powers of State and Local Authorities Article 39- (1640-1646) Regulation of Traffic By Cities and Villages- 1640-D, accessible at: <http://law.justia.com/codes/new-york/2010/vat/title-8/article-39/>

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Figure 4-5. Combined Alternative 4b/Option 1: Two-Side Alternating Parking

This alternative incorporates alternating sides so that employee and residential parking sides switch depending on the calendar day.

Source: C&S Engineers, Inc.

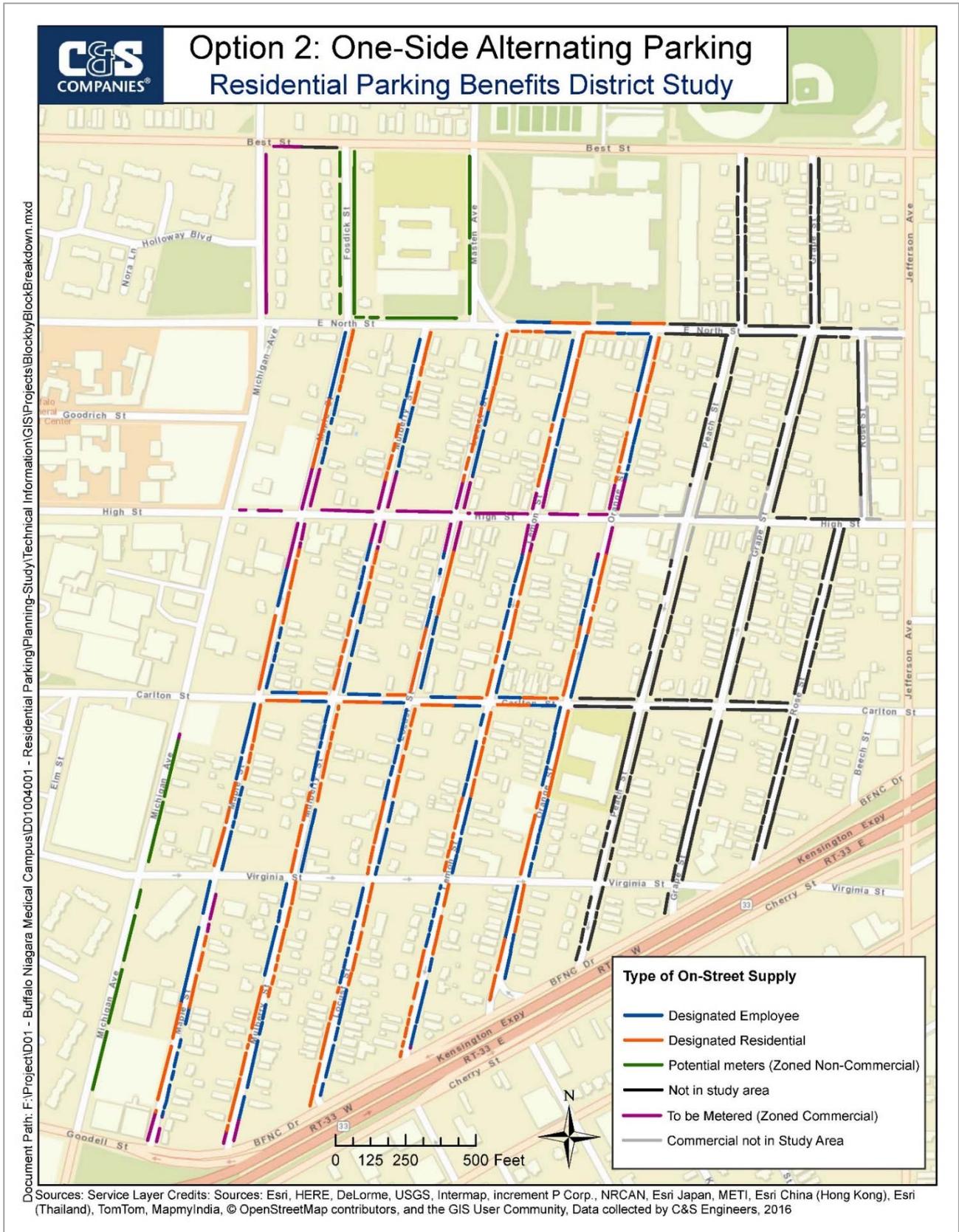


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Figure 4-6. Combined Alternative 5/Option 2: One-Side Alternating Parking

This alternative incorporates alternating sides so that parking sides switch depending on the calendar day. Each half block is divided into a residential and an employee section.

Source: C&S Engineers, Inc.



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Section 5— Preferred Strategy

Final consultation with the residents of the City of Buffalo, the Project Steering Committee, and other interested working groups ultimately identified a Residential and Employee Permit Program with Alternating Sides as the preferred strategy (previously presented as Combined Alternative 5/Option 2 in **Section 4.7** and **Figure 4-6**).

5.1 Preferred Strategy Overview

This strategy would create a parking permit program for the Fruit Belt in which parking permits would be required by employees and residents to park in any non-metered on-street parking space. Parking permits would be required on weekdays from 6AM Monday to 6PM Friday. The area in which permits would be required would be bordered by the east side of Michigan Street, the east side of Orange Street, the south side of Best Street, and Goodell Street/BNMC Drive. This area would create a parking permit benefits district, with funds generated under this initiative to be used to implement and operate the program as well as for funding neighborhood improvements in the district.

Within this district, further delineation with signage would divide each block-face in half, creating a designated employee section for each half block and a designated residential section for each half block. Alternating side street parking with one weekly switchover time would also be incorporated into this program. This would designate only one side of the street per calendar weekday in which both employees and residents can park. With this weekly switchover time, vehicles with permits can remain parked on one side of the street Monday from 6am to Wednesday at 6pm, before they must be moved at 6pm on Wednesday to the other side of the street, where they can remain until Friday at 6pm. This would leave one side of the street open at all times during weekdays for street cleaning and snow plowing services. After Friday at 6pm and before Monday at 6am, permits and alternate side-street parking is not in effect so parking can occur on both sides of the street with or without a parking permit. **Figures 5-1** and **5-2** provide representations of how this strategy would look on the weekdays of Monday through Wednesday and Thursday through Friday.

This strategy is developed under the assumption that legislation for a pilot parking permit program within the boundaries of the study area would be passed by the State of New York. As congruent with existing legislation for parking permit programs in the State of New York, this bill would require the following stipulations²¹:

- 1) The City of Buffalo may, by adoption of local law or ordinance, provide for a residential parking permit system and fix and require the payment of fees applicable to parking within the area in which such parking system is in effect.
- 2) The parking permit program may only be established within the roadways listed in the terms of the legislation

21 New York State Assembly, Bill No. A07574E. Accessed May 5, 2016. Accessible at:
http://nyassembly.gov/leg/?default_fld=&leg_video=&bn=A07574&term=2015&Summary=Y&Text=Y

- 3) Permits shall not be required on streets where the adjacent properties are zoned for commercial, office, and/or retail use.
- 4) The local law or ordinance providing for the parking permit program shall:
 - a) Ensure that the factors necessitating the enactment of the parking system are set forth.
 - b) Provide that motor vehicles registered pursuant to Section 404-a are exempt from any permit requirements. Vehicles that fall under Section 404-a are those that have been legally issued with disabled person or disabled veteran license plates.²²
 - c) Provide the times of the day and days of the week during which permit requirements shall be in effect.
 - d) Ensure that at least 20% of all the spaces within the permit area are made available to non-residents and provide short-term parking for at least 90 minutes.
 - e) Provide a schedule for permit fees.
 - f) Ensure that fees generated from permits are credited to the general fund of the city of Buffalo.
- 5) The adoption of this ordinance cannot be mandated until a public hearing is held that is similar to that of other public hearings that are pursuant to the municipal home rule law.

Residents would be able to receive a free yearly permit by showing their proof of residency in the form of a lease, driver license, deed, letter from landlord, utility bill, etc. and their vehicle registration. Residential permits would be required to park in residential zones in the Fruit Belt district from 6AM Monday to 6PM Friday. Residential permits are not needed 6PM Friday to 6AM Monday.

Employees would be able to purchase yearly or monthly employee parking permits by showing proof of their employment, such as a work ID or letter from their employer on official letterhead along with their vehicle registration. It is recommended that a system is established with the BNMC institutions so that this cost can be deducted monthly from employee paychecks. This would eliminate the need for employees to physically update their permit each month, for permits to be reprinted monthly, and for employees to pay a large up-front fee to cover the cost of twelve months of permits at a time. For employees, parking permits would be required to park in the Fruit Belt during weekdays and employees would be restricted to employee designated zones at these times. Employee permits would be designated based on street, with permits for streets closer to BNMC priced higher than permits designated for streets farther away from BNMC.

Due to different geometry between opposing sides of the street, there is a difference between the available on-street supply for residents and employees depending on the calendar day under alternate side-street parking restrictions. For this reason, when examining the number of employee permits that can be designated per street, the smallest on-street supply for each employee section of each block face was considered in the calculations. Assuming a planning buffer of 85%, this left a total of approximately 210 employee parking permits to be distributed for the Fruit Belt permit areas (see **Appendix D** for summary). **Table 5-1** shows a comparison for the number of employee permits that can be designated per street.

²² New York State Law- Vehicle and Traffic Law- Title IV- Article 14- Section 404-a, Registration of motor vehicles of severely disabled persons, accessible at: <http://ypdcrime.com/vt/article14.htm%20-%20t404..htm>

Table 5-1. Number of Employee Parking Permits per Street

The number of employee permits per street was calculated based on 85% of the smallest available on-street supply for the entire street.

Source: C&S Engineers, 2016

Street	Smallest Available On-Street Supply for Entire Street	# of Employee Permits
Maple	43	36
Mulberry	50	42
Locust	45	38
Lemon	44	37
Orange	39	33
North	9	7
Carlton	20	17

*Note: Planning buffer of 85% applied to On-Street Supply to determine amount of employee permits; Streets with meters omitted

As indicated according to the legislation needed to create a parking permit program in the Fruit Belt, at least 20% of available on-street parking within the designated permit area must be made available for short-term parking for non-residents. Considering another stipulation requires that parking permits cannot be required on-street in areas adjacent to properties zoned for retail, office, or commercial use, all available on-street parking in these areas would be metered to provide short-term parking for non-residents. Considering that only 16% of existing on-street supply currently falls into non-residential zoning (refer to **Figure 2-1**), a total of 43 additional parking spaces must be metered somewhere within the study area. Due to the pattern of existing housing development in the Fruit Belt and for the ease of implementation for this program, **Figures 5-1** and **5-2** present recommended options for this additional metering. However, it is important to note that not all of this on-street supply is necessary to reach the 20% minimum for short-term non-residential parking. **Table 5-2** presents the total available on-street supply for each suggested potential metered block.

Table 5-2. Total On-Street Supply for Potential Metered Blocks in Residential Zoning

Additional metered blocks were selected to reach the 20% minimum for short-term non-residential parking.

Source: C&S Engineers, 2016

Street	Location (From/To)	Side	On-Street Spaces
Michigan	Goodell/Virginia	East	32
Michigan	Virginia/Carlton	East	21
Best	metered section/Fosdick	South	6
Fosdick	North/Best	West	29
Fosdick	North/Best	East	29
North	Maple/Mulberry	North	15
Masten	North/Best	West	27

Any funds generated as revenue from metered spaces and employee parking permits after the costs for the implementation, maintenance, and operations of this strategy are offset would be contributed towards the parking benefits district.

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Figure 5-1. One-Side Alternating Parking, Monday 6AM to Wednesday 6PM Example

Example of this strategy under a Monday 6AM to Wednesday 6PM one-side alternating parking restriction.

Source: C&S Engineers, Inc.



Sources: Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community. Data collected by C&S Engineers, 2016

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Figure 5-2. One-Side Alternating Parking, Wednesday 6PM to Friday 6PM Example
 Example of this strategy under a Wednesday 6AM to Friday 6PM one-side alternating parking restriction.

Source: C&S Engineers, Inc.



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Sources: Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Data collected by C&S Engineers, 2016

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5.2 Implementation Procedures and Costs

Signage

With the implementation of the preferred strategy, there are several associated costs and opportunities. The first cost that must be considered is that associated with the removal of existing signage and the implementation of new signage into the permit district. Under the assumption that two signs would be needed to mark the beginning and the end of each designated employee and residential block face, 52 signs would be needed for residential on-street areas and 52 signs would be needed in total for employee on-street areas. Under the same assumption that signs would be needed at the beginning and end of each metered block, this would require 62 additional signs. Since the cost for a small 12" by 18" sign is approximately \$30, a type-A sign post is approximately \$140, and concrete footing for each sign post is approximately \$150, an approximate cost per sign is \$320. Assuming that no materials are recycled from any currently existing signs in the Fruit Belt, the initial cost to install signage would be approximately \$53,120. If the suggested metered streets are also incorporated under this same criteria, this cost would be an additional \$1,890.

This new signage should be developed in a way that it is helpful and clear for employees, residents, and visitors to the Fruit Belt to know where and when they can park without being ticketed. For this reason, signage for metered parking should clearly indicate that parking permits are not required for metered spaces and should also indicate any time limits or parking meter restrictions. Signage for permit streets should clearly indicate switchover times and hours in which parking permits are needed.

Meters

Another cost that must be considered are those associated with the installation of parking meters. Initial parking meter costs are largely dependent upon the type and amount of parking meters that are to be implemented in the study area. Since it is required that at least 20% of the parking spaces within the permit district are metered for short-term and non-residential parking, at least 241 parking spaces must be metered throughout the entire Fruit Belt.

The City's first option is to install coin operated/mechanical meters. While these machines have cost the city as little as approximately \$135 each recently and have a 20-year lifespan,²³ they do not contain up-to-date technology and provide customer service and operator-friendly options. More advanced coin/card operated single/double-space meters cost approximately \$550 each with additional monitoring/notification services charged monthly. If only the minimum amount of spaces needed to provide short term parking are metered, this would cost the City an initial fee of approximately \$122,000 to provide advanced single/double-space meters in the Fruit Belt. If all of the potential metered areas shown in **Figures 5-1 and 5-2** are also metered, this would create an approximate total of \$220,000.

²³ "Days of feeding the parking meter in Buffalo may be over," The Buffalo News, City and Region Section, by Susan Schulman, 09-27-15, accessible at: <http://www.buffalonews.com/city-region/buffalo/days-of-feeding-the-parking-meter-in-buffalo-may-be-over-20150927>

An additional option for the City would be to install pay stations. Pay-and-display stations, although initially more expensive than coin operated/mechanical meters, are consistent with the Downtown Buffalo Infrastructure and Public Realm Master Plan of November 2014 to reduce street clutter.²⁴ Pay-and-display stations are also easy to use since they can be coin or credit card operated. Installation is also easy as they do not have to be connected to existing infrastructure but can be solar powered with a battery backup. For these reasons, pay-and-display-stations are the recommended overall meter type. Although the physical meter locations should be analyzed for their proximity to fire hydrants, street signs, building entrances, and line of sight views, pay-and-display stations are usually located no more than ten spaces from each other. Under the assumption that at least 241 spaces must be metered, this would require the purchase and installation of approximately 24 meters. At \$8,700 each, the total capital cost for the meters is \$208,800. With the metering of the additional proposed areas, this would cost an approximate additional \$138,330, for a total of \$347,130.

However, given the unique geometry of commercial zoning in the Fruit Belt causing the need in some locations for only one or two metered on-street parking spaces per block, a combination of parking meters and pay-and-display stations may provide the most cost efficient solution.

Currently in the City of Buffalo, meters are in effect from 8AM to 5PM on Monday through Saturday with Sundays and legal holidays excluded. Meters are priced at one dollar per hour with a maximum time limit of two hours. It is expected that meters installed in the Fruit Belt permit area would follow the same regulations.

Additional on-street parking costs that must be considered include the costs for materials/parts to replace broken meters and the depreciating cost of meters. Additional fees that must also be considered include those for credit card fees and bank counting fees.

Parking Permit Passes

Both sticker decals and car rearview-mirror hang-tags are viable options to be considered as parking permit passes. Mirror hang-tags are advantageous because they are easy to apply and remove by vehicle owners and may also be a better option for enforcement as they are easy to see by parking permit enforcement officials. However, sticker decals are arguably safer as they do not block a driver's field of view. Assuming a planning buffer of 85%, approximately 210 employee parking permits can be distributed. However, since employee permits are to be distributed by street, seven unique types of employee hand tags must be designed. For this reason, it is expected that employee permits would cost more than residential permits as they cannot be purchased in bulk.

Although a study of current on-street demand indicates that only approximately 84 residential vehicles utilize on-street parking, an approximate number of how many residents would actually request parking permits cannot be determined. Assuming that approximately 1.5 households occupy each residential tax-parcel in the Fruit Belt, and that each household chooses to receive three permits, a total of 2,256 residential permits could be distributed. Under this same criteria but with the additional assumption that only residents

²⁴ Buffalo Urban Development Corporation, Downtown Buffalo Infrastructure and Public Realm Master Plan of November 2014, Accessible at: <http://www.buffalourbandevelopment.com/budc-downtown-development>

without driveways would request permits, approximately 1,134 permits could be provided. However, not every household in the Fruit Belt would require a parking permit. For this reason, it is expected that the number of residential parking permits created in successive years is developed based on the amount of permits distributed during the year prior.

An online search of parking permit stickers and mirror hang-tags pricing was conducted to estimate potential costs. Custom vinyl sticker decals can be purchased for as low as \$0.40 a sticker when purchased in bulk for 1,000. When purchased in smaller amounts, for example a bulk of 25 decals, they can cost \$2.00 each.²⁵ Custom parking permit rear-view mirror hang-tags cost a similar amount. Mirror hang-tags can cost approximately \$3.00 each for a quantity of 25 and approximately \$0.50 each for a quantity of 1,000.²⁶

Public Notification and Learning

A promotional campaign will have to be implemented to properly notify and educate Fruit Belt residents, visitors, and employees before the enactment of this program. This promotional campaign is expected to only need to occur once, although it is recommended that a permanent webpage be added to the City of Buffalo's official website detailing facets of the parking permit program such as: information on how and where to receive parking permits, parking permit costs, deadlines and dates, frequently asked questions, etc. This webpage should have a short URL that can be easily typed into a web browser and if necessary to achieve this, it is recommended that a custom domain name be purchased. Custom domains can be purchased for the cost of approximately \$50 with the main benefit being that an easy to remember URL can be chosen and that this URL can be linked directly to the City of Buffalo's official website.

Public notices and informational flyers will also have to be distributed throughout the neighborhood, to every residence, business, and institution. These mailers can be distributed in two ways: the first being through the use of rural route mailing through the US post-office and the second being through individual distribution. Rural route mailing would be beneficial because every single residence in the Fruit Belt with a mailbox would receive a mailer in the form of a postcard or flyer. Individual distribution would require the creation of door-tags to hang from the doorknob of each residence and the hiring of individuals to distribute these. The disadvantage of this would be that apartment complexes or buildings with multiple households sharing one entrance would only receive one hang-tag. However this strategy could also be advantageous because it could incorporate members of the community as distributors.

Regardless of the method of notification chosen, there should be more than one round of distribution for notification materials. It is recommended that the second round of notification occurs approximately three weeks to one month after the initial notification. Ideally, saturation goals should also be established before the distribution of notification materials. By creating target goals of how many permits should be sold by deadlines, the effectiveness of the promotional campaign can be tracked. If goals are not being met, additional initiatives can be implemented.

25 K12 Parking Permits, Vinyl Parking Permit Stickers, accessed May 11, 2016. Accessible at: <http://www.k12parkingpermits.com/vinyl-stickers/>

26 K12 Parking Permits, Custom Parking Permit Hang Tags, accessed May 11, 2016. Accessible at: <http://www.k12parkingpermits.com/hang-tags/>

One method to get residents to sign up for permits before the start date of the permit program would be to create a contest or promotion where residents are entered to win a prize if they sign up before a specific date. Prizes could include gift-cards to local neighborhood businesses. The larger the prize or the more prizes distributed would create a larger incentive for residents to obtain parking permits before the start date of the parking program. This would be advantageous because it would allow for a smooth transition into the program as residents will be prepared ahead of time rather than waiting to receive parking permits after the implementation of the program. This will reduce ticketing to residents and their visitors in the initial stages of the program.

Social media outlets such as Facebook and Twitter, should also be taken advantage of during this process. Local community groups with social media targeted at Fruit Belt residents can be reached out to spread the word about the parking program. Additionally, local organizations and community groups with newsletters or webpages can also be used as additional resources.

BNMC employees should also be considered in public outreach. It is recommended that current lines of communication already existing within the BNMC are utilized to inform employees about this program. Examples of this could include: company email blasts, pamphlets delivered to employee home addresses, and by utilizing the existing BNMC webpage.

Table 5-3. Implementation Cost Summary

Costs for implementation include that for signage, cost control, permits, and marketing materials.

Source: C&S Engineers, 2016

Item	Description	Units	Unit cost	Cost	
Signage	166 signs	172	\$320	\$55,040	
Cost Control	400 single/double-space meters	400	\$550	\$220,000	
	or				
	40 pay-stations	40	\$8,700	\$348,000	
Permits	1,000 resident/500 employee			\$2,000	
Marketing/Promotion	Printed/mailed materials, website URL, incentives, misc			\$1,000	
		Total		\$278,040	Meters
				\$406,040	Pay-stations

Notes: Implementation cost estimate does not include city staff labor
(assumed city staff will install signage & cost control)

Cost control estimates based on materials provided by MacKay Meters (see Appendix F)

Requests for information from the City of Buffalo to inform estimates were not answered

5.3 Operations and Maintenance

Permit Distribution, Database Maintenance, and Continued Marketing

A designated location must be established where residents and employees can purchase and receive permits. If possible, multiple locations designated to suit both the needs of BNMC employees and Fruit Belt residents are recommended. Ultimately, at least one location at the BNMC and another in the Fruit Belt are recommended. If a location directly in or near the vicinity of the Fruit Belt cannot be chosen as a permanent

location, one solution is to create temporary permit distribution locations. Since both residents and employees would have to acquire a new parking permit every year, temporary permit distribution locations can be set up in the Fruit Belt neighborhood and on the BNMC campus at the end of each permit year. This way, permits would be easily accessible for both residents and employees to repurchase before their permits expire. It is important to note that with the creation of temporary permit distribution solutions, a permanent distribution location must still be chosen.

Depending on the location(s) chosen, it is possible that additional staff would have to be hired to oversee maintenance operations. Additional employees would also be needed to distribute parking permits, maintain a database of users, handle monetary transactions, and be available to answer questions for residents and employees. Marketing efforts would continue to promote the program and inform users of any updates or changes to the program.

Enforcement

Increased enforcement is an initiative that was assumed would be implemented regardless of which strategy was chosen. Enforcement is a necessity for the functioning of this strategy as additional enforcement staff/police are needed to patrol the permit district. In addition to ticketing individuals who park illegally (such as in front of hydrants and driveways), enforcement officials would also be responsible for checking that vehicles parked on weekdays have permits. Additionally, employee and residential permits must be checked that they are parked in the correct half-block area and on the correct side of the street by time of day. Employee permits would also have to be checked that they are parked on the correct street.

Metered parking would also have to be monitored. Additional meter monitors may be necessary to check vehicles parked at meters and additional staff may be needed to empty and maintain meters. Costs associated with this include fuel for monitor vehicles, salaries, and benefits.

Infrastructure Maintenance

There are several maintenance costs associated with the equipment needed for this strategy. For example, the life span for signage must be incorporated into the operations and maintenance plan since signage must be replaced before retroreflectivity is lost.²⁷ Single- and/or double-space parking meters and pay-and-display stations must also be monitored and updated regularly, have any coin/dollar funds collected, and refilled with paper for display slips.

A summary of estimated operations and maintenance costs per year are shown in the following table.

²⁷ U.S. Department of Transportation, Federal Highway Administration, Methods for Maintaining Traffic Sign Retroreflectivity, Chapter 4. Management Methods. Accessed May 10, 2016. Accessible at: http://safety.fhwa.dot.gov/roadway_dept/night_visib/policy_guide/fhwahrt08026/chapter4.cfm

Table 5-4. Annual Operations Cost Summary

Costs for operations include estimated labor and monitoring.

Source: C&S Engineers, 2016

Item	Description	Months	Monthly Cost	Annual Cost	
Staff - Permits/Database Maintenance	Assume 1 FTE @ \$45,000/year @ 50% for 1 month then 25% for remaining 11 months	12	\$3,750	\$12,188	
Staff - Marketing/Promotion	Assume 1 FTE @ \$45,000/year @ 50% for 1 month then 5% for remaining 11 months	12	\$3,750	\$6,000	
Permits	1,000 resident/500 employee			\$2,000	
Marketing	Assume implementation efforts/costs occur annually for continued promotion Printed/mailed materials, website URL, incentives, misc			\$1,000	
Meter Monitoring (service by provider)	400 single/double-space meters (\$15/meter/month) or 40 pay-stations (\$55/station/month)	12	\$6,000	\$72,000	
	Annual pay-station software update (\$500/station/year)	-	-	\$20,000	
Total				\$93,188	Meters
				\$67,588	Pay-stations

Notes: FTE - full-time staff equivalent

Parking regulation enforcement/ticketing/collections labor efforts not included

Maintenance of signage & meters/pay-stations not included

Cost control estimates based on materials provided by MacKay Meters (see Appendix F)

Requests for information from the City of Buffalo to inform estimates were not answered

5.4 Pricing and Potential Revenue

Employee Permit Fee Structure

Before parking permits can be distributed to employees, a fee structure must be decided upon. Currently, employee parking on campus ranges from \$55 per month for Roswell Park Cancer Institute employees up to \$89 per month for BNMC-managed facilities. Since on-street parking in the Fruit Belt is farther away from the campus than these garages, and street parking generally costs less than garage parking, it is recommended that permits for the Fruit Belt are priced less than these garages. The utilization of a multi-fee permit structure is also recommended so that permits for streets closer to BNMC, where there is greater demand for on-street parking, would be priced higher than those for farther away from the campus. The price of employee permits should be carefully managed to offset the costs of their production and distribution but should also not be priced too high so that employees would not purchase them. **Table 5-5** outlines an example of a possible employee permit fee structure that can be implemented under this program.

Table 5-5. Employee Parking Permits Potential Fee Structure

Monthly permit fees are priced depending on location.

Source: C&S Engineers, 2016

Employee Half Blocks				
Street	Lower Supply Side	Higher Supply Side	Monthly permit fee	Potential monthly revenue
Maple:	43	52	\$50	\$1,828
Mulberry:	50	49	\$45	\$1,913
Locust:	45	50	\$40	\$1,530
Lemon:	44	43	\$35	\$1,309
Orange:	39	42	\$30	\$995
North:	9	12	\$35	\$268
Carlton:	20	19	\$35	\$595
Total	250	267	N/A	\$8,436

*Note: Potential monthly revenue calculated based on 85% of the lower supply side for employees by half block

Assuming that the employee fee structure outlined in **Table 5-5** is implemented and that all employee permits are sold, a total monthly revenue of approximately \$8,500 can be generated.

Potential Meter Revenue

As stated previously, there would be approximately 400 metered, short-term spaces within the permit area. Assuming the area would implement the same \$1 per hour city-wide pricing and 9 hours of operation 5 days a week, the maximum potential revenue for the area would be approximately \$936,000 annually. Depending on the assumed occupancy of the metered spaces, revenues could range from \$702,000 with an assumed 75% occupancy to \$234,000 with an assumed 25% occupancy. Existing revenue information for the City of Buffalo was not made available for comparison.

Overall Program Revenue Potential

Table 5-6 shows that after two full years of the program, assuming all employee permits are issued and a 25% occupancy of the metered spaces, the program could generate income. It also shows that within 5 years, the higher upfront costs associated with paystations are evened out by the more expensive costs to operate/maintain the single/double-spaced metered. See **Appendix F** for more financial estimates.

Table 5-6. Revenue Potential

Source: C&S Engineers, 2016

	2016				2017		
	Implementation	Operations	Revenue¹	Income	Running Total Cost²	Running Total Revenue³	Income
Meters	\$278,040	\$93,188	\$336,000	-\$35,228	\$464,415	\$672,000	\$207,585
Paystation	\$406,040	\$67,588	\$336,000	-\$137,628	\$541,215	\$672,000	\$130,785

1 - Revenue includes potential revenue from permits and metered short-term spaces

2 - Running total cost includes implementation and annual operations to that year

3 - Running total revenue totals annual potential revenue to that year

Allocation of Funds

As discussed above, it is likely that revenue would be generated as a result of this initiative. Although funds would be appropriated to the City of Buffalo and reserved especially for the Fruit Belt as a parking benefit district, a decision must still be made regarding how these funds would be managed. To guide this process, it is recommended that a committee, similar to that of the project steering committee created for this study, is created to guide executive decisions regarding the utilization of revenue. This committee could be appointed by a mayor and approved by city council as in Houston, Texas. The Washington Avenue PBD advisory committee is made up of 7 representatives from the local community and 5 non-voting city department directors and they are charged with developing a project list based on feedback received from public meetings.²⁸

This committee would ultimately decide upon how funds would be allocated for eligible neighborhood improvements. Examples of recommended improvements include: the installation of curb ramps and crosswalks, the creation of bicycle lanes, sidewalk and pavement repairs, improved street-lighting, traffic calming methods, plaza creation, landscaping and streetscaping, increased maintenance and policing, etc. Additional considerations would be how funds would be distributed. For example, the committee may wish to allocate half of the revenue after maintenance and operations costs are recovered to long-term projects and the other half to short-term projects. Or, they may wish to allocate percentages of the total funds by location within the Fruit Belt or by type of project enacted. Decisions would also have to be made regarding whether or not revenue generated from this program can be used in conjunction with other city funds for neighborhood improvements within the district.

5.5 Summary

The preferred strategy presented in this study is the creation of a parking benefits district under a Residential and Employee Permit Program with Alternating Sides. Key components of this strategy include:

- A permit district would be created for the area bound by Michigan St., Orange St., Best St., and Goodell Street/BFNC Drive.
- Each block would be split into residential and employee designated parking areas.
- Alternate side-street parking would be in effect on weekdays with one weekly switchover time.
- Permits would be free for residents; employee fees would be dependent upon proximity to the BNMC.
- Revenue generated would be used for program implementation. Any additional revenue would be dedicated to implement neighborhood improvements (e.g. installation of bike lanes, sidewalk repairs, community beautification and public safety projects).
- Consistent with legislation, at least 241 commercial spaces would be metered with funds providing revenue for the benefits district.

This strategy was developed with guidance from a project steering committee represented by members of BNMC institutions, the City of Buffalo, the NYS Office of the Assembly, the NYS Senate, Fruit Belt residents, and advocacy organizations, with additional public input provided through residential surveying.

²⁸ <http://www.houstontx.gov/parking/washingtonavenue.html>. Accessed June 7, 2016.

Elements from real-life parking management strategies, from best practices in the State of New York and nationwide, were examined in the development of the preferred strategy. Existing supply and demand and future demand analyses were conducted to ensure that the preferred strategy presented in this study would not just meet the existing on-street parking demand for the Fruit Belt neighborhood but also for the future yet to come. This strategy was developed with the goals to 1) reduce the number of single occupant vehicles driving to and from the area; 2) provide a set of customizable active parking management (APM) strategies that could be effectively managed under a sound financial management strategy; 3) improve access and mobility in the Fruit Belt neighborhood; and 4) ensure an improved quality of life for Fruit Belt residents.

Final Parking Agreement

Subsequent to the development of this recommendation, on May 12, 2016, an agreement was reached between elected officials, union representatives, resident representatives, and the City of Buffalo. Under this agreement, alternate side-street parking will still remain in effect and each street from Maple to Orange will be broken down into half blocks. One half of each block will be designated for residential parking only, with residents able to obtain free residential parking permits. The other half of each block will remain open as free and unrestricted parking for the general public. While this agreement will ensure part of each block will be designated for residential use, there will be no deterrent for BNMC employees or construction workers to park within the neighborhood. Therefore, most of the goals and objectives for this study would not be met such as reducing parking demand and providing a potential revenue source for the neighborhood.

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Appendix A – Parking Supply and Demand

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Parking Supply, Effective Supply and Occupancy

FID	Street_Joi	Street_J_1	Subarea	Subarea2	SUPPLY	EFFECT_SUPP	AM_OCC	AM_UTIL	MID_OCC	MID_UTIL	PM_OCC	PM_UTIL
61	S	Best	F	A	11	9	0	0.00	0	0.00	0	0.00
38	N	Carlton	G	A	9	8	0	0.00	0	0.00	0	0.00
39	N	Carlton	H	A	8	7	0	0.00	0	0.00	0	0.00
62	S	Carlton	G	A	10	9	7	82.35	8	94.12	3	35.29
63	S	Carlton	H	A	10	9	7	82.35	7	82.35	2	23.53
0	E	Fosdick	E	A	29	25	0	0.00	0	0.00	0	0.00
75	W	Fosdick	E	A	27	23	25	108.93	25	108.93	4	17.43
45	N	High	F	A	6	5	4	78.43	4	78.43	3	58.82
46	N	High	G	A	9	8	9	117.65	6	78.43	5	65.36
47	N	High	H	A	10	9	8	94.12	8	94.12	3	35.29
85	W	Locust	A	A	31	26	0	0.00	0	0.00	0	0.00
86	W	Locust	B	A	25	21	0	0.00	0	0.00	0	0.00
87	W	Locust	C	A	23	20	0	0.00	0	0.00	0	0.00
88	W	Locust	D	A	26	22	0	0.00	0	0.00	0	0.00
13	E	Maple	A	A	34	29	27	93.43	30	103.81	17	58.82
14	E	Maple	B	A	26	22	21	95.02	20	90.50	12	54.30
15	E	Maple	C	A	25	21	23	108.24	25	117.65	22	103.53
16	E	Maple	D	A	23	20	21	107.42	23	117.65	15	76.73
89	W	Maple	A	A	41	35	1	2.87	0	0.00	0	0.00
90	W	Maple	B	A	26	22	0	0.00	0	0.00	0	0.00
91	W	Maple	C	A	30	26	1	3.92	1	3.92	9	35.29
92	W	Maple	D	A	32	27	4	14.71	0	0.00	6	22.06
93	W	Masten	E	A	26	22	0	0.00	0	0.00	0	0.00
17	E	Michigan	A	A	30	26	0	0.00	0	0.00	0	0.00
18	E	Michigan	B	A	22	19	0	0.00	0	0.00	0	0.00
19	E	Michigan	E	A	29	25	23	93.31	24	97.36	17	68.97
20	E	Mulberry	A	A	36	31	23	75.16	28	91.50	20	65.36
21	E	Mulberry	B	A	24	20	22	107.84	22	107.84	7	34.31
22	E	Mulberry	C	A	25	21	19	89.41	20	94.12	12	56.47
23	E	Mulberry	D	A	25	21	26	122.35	25	117.65	19	89.41
97	W	Mulberry	A	A	40	34	1	2.94	0	0.00	2	5.88
98	W	Mulberry	B	A	23	20	0	0.00	0	0.00	1	5.12
99	W	Mulberry	C	A	24	20	0	0.00	0	0.00	2	9.80
100	W	Mulberry	D	A	25	21	1	4.71	0	0.00	0	0.00
54	N	North	G	A	15	13	0	0.00	0	0.00	0	0.00

Parking Supply, Effective Supply and Occupancy

Sub Area B

FID	Street_Joi	Street_J_1	Subarea	Subarea2	SUPPLY	EFFCT_SUPP	AM_OCC	AM_UTIL	MID_OCC	MID_UTIL	PM_OCC	PM_UTIL
40	N	Carlton	I	B	9	8	0	0.00	0	0.00	0	0.00
41	N	Carlton	J	B	8	7	0	0.00	0	0.00	0	0.00
42	N	Carlton	K	B	9	8	0	0.00	0	0.00	0	0.00
64	S	Carlton	I	B	10	9	7	82.35	7	82.35	0	0.00
65	S	Carlton	J	B	10	9	2	23.53	5	58.82	0	0.00
66	S	Carlton	K	B	10	9	0	0.00	0	0.00	0	0.00
48	N	High	I	B	8	7	6	88.24	7	102.94	2	29.41
49	N	High	J	B	8	7	4	58.82	3	44.12	2	29.41
50	N	High	K	B	10	9	0	0.00	1	11.76	1	11.76
5	E	Lemon	A	B	24	20	2	9.80	1	4.90	1	4.90
6	E	Lemon	B	B	25	21	7	32.94	9	42.35	12	56.47
7	E	Lemon	C	B	26	22	5	22.62	8	36.20	4	18.10
8	E	Lemon	D	B	29	25	2	8.11	7	28.40	5	20.28
81	W	Lemon	A	B	24	20	1	4.90	0	0.00	1	4.90
82	W	Lemon	B	B	21	18	0	0.00	0	0.00	0	0.00
83	W	Lemon	C	B	24	20	0	0.00	0	0.00	0	0.00
84	W	Lemon	D	B	25	21	0	0.00	0	0.00	0	0.00
9	E	Locust	A	B	31	26	8	30.36	17	64.52	14	53.13
10	E	Locust	B	B	24	20	15	73.53	17	83.33	7	34.31
11	E	Locust	C	B	29	25	25	101.42	25	101.42	11	44.62
12	E	Locust	D	B	29	25	20	81.14	23	93.31	10	40.57
55	N	North	I	B	13	11	0	0.00	0	0.00	0	0.00
56	N	North	J	B	12	10	0	0.00	0	0.00	0	0.00
57	N	North	K	B	12	10	0	0.00	0	0.00	0	0.00
69	S	North	I	B	7	6	2	33.61	4	67.23	1	16.81
70	S	North	J	B	10	9	0	0.00	0	0.00	0	0.00
71	S	North	K	B	11	9	0	0.00	0	0.00	0	0.00
24	E	Orange	A	B	15	13	0	0.00	0	0.00	0	0.00
25	E	Orange	B	B	28	24	0	0.00	0	0.00	0	0.00
26	E	Orange	C	B	28	24	0	0.00	0	0.00	0	0.00
27	E	Orange	D	B	26	22	0	0.00	0	0.00	0	0.00
101	W	Orange	A	B	20	17	5	29.41	5	29.41	4	23.53
102	W	Orange	B	B	26	22	7	31.67	13	58.82	6	27.15
103	W	Orange	C	B	24	20	7	34.31	8	39.22	2	9.80
104	W	Orange	D	B	26	22	3	13.57	3	13.57	0	0.00
105	W	Peach	A	B	8	7	0	0.00	0	0.00	0	0.00
106	W	Peach	B	B	24	20	0	0.00	0	0.00	0	0.00
107	W	Peach	C	B	28	24	0	0.00	0	0.00	0	0.00
108	W	Peach	D	B	29	25	0	0.00	0	0.00	0	0.00
109	W	Peach	E	B	23	20	0	0.00	0	0.00	0	0.00

Parking Supply, Effective Supply and Occupancy

Sub Area C

FID	Street_ Joi	Street_J_ 1	Subarea	Subarea2	SUPPLY	EFFCT_SUPP	AM_OCC	AM_UTIL	MID_OCC	MID_UTIL	PM_OCC	PM_UTIL
43	N	Carlton	L	C	8	7	0	0.00	0	0.00	0	0.00
44	N	Carlton	M	C	9	8	0	0.00	0	0.00	0	0.00
67	S	Carlton	L	C	10	9	2	23.53	5	58.82	0	0.00
68	S	Carlton	M	C	10	9	0	0.00	0	0.00	0	0.00
1	E	Grape	B	C	28	24	3	12.61	2	8.40	3	12.61
2	E	Grape	C	C	25	21	5	23.53	4	18.82	3	14.12
3	E	Grape	D	C	28	24	1	4.20	2	8.40	0	0.00
4	E	Grape	E	C	26	22	7	31.67	3	13.57	1	4.52
76	W	Grape	A	C	4	3	0	0.00	0	0.00	0	0.00
77	W	Grape	B	C	28	24	0	0.00	0	0.00	0	0.00
78	W	Grape	C	C	29	25	0	0.00	0	0.00	0	0.00
79	W	Grape	D	C	28	24	0	0.00	0	0.00	0	0.00
80	W	Grape	E	C	23	20	0	0.00	0	0.00	0	0.00
51	N	High	L	C	10	9	0	0.00	0	0.00	0	0.00
52	N	High	M	C	13	11	0	0.00	0	0.00	0	0.00
53	N	High	N	C	2	2	0	0.00	0	0.00	0	0.00
58	N	North	L	C	11	9	0	0.00	0	0.00	0	0.00
59	N	North	M	C	5	4	0	0.00	0	0.00	0	0.00
60	N	North	N	C	6	5	0	0.00	0	0.00	0	0.00
72	S	North	L	C	9	8	0	0.00	0	0.00	0	0.00
73	S	North	M	C	4	3	0	0.00	0	0.00	0	0.00
74	S	North	N	C	5	4	0	0.00	0	0.00	0	0.00
28	E	Peach	A	C	10	9	0	0.00	0	0.00	0	0.00
29	E	Peach	B	C	27	23	15	65.36	15	65.36	7	30.50
30	E	Peach	C	C	27	23	5	21.79	4	17.43	3	13.07
31	E	Peach	D	C	27	23	4	17.43	2	8.71	2	8.71
32	E	Peach	E	C	24	20	0	0.00	3	14.71	3	14.71
33	E	Rose	B	C	21	18	1	5.60	1	5.60	1	5.60
34	E	Rose	C	C	25	21	4	18.82	3	14.12	5	23.53
35	E	Rose	D	C	30	26	0	0.00	0	0.00	0	0.00
110	W	Rose	B	C	21	18	0	0.00	0	0.00	0	0.00
111	W	Rose	C	C	27	23	0	0.00	0	0.00	0	0.00
112	W	Rose	D	C	31	26	1	3.80	1	3.80	1	3.80

On-Street Parking A.M. Activity - Fruit Belt Neighborhood - Subarea A (11/4/15)

Street (Block)	Cars Parked Prior to 6AM	Departures (6AM-9AM)	Worker Arrivals (6AM-9AM)	Resident Arrivals (6AM-9AM)	Midday Peak Occupancy (11AM-12PM)
Maple St (North to High)	16	4	10	0	21
Maple St (High to Carlton)	24	1	1	0	24
Maple St (Carlton to Virginia)	8	0	12	0	20
Maple St (Virginia to BFNC)	15	0	13	1	28
Maple St Totals	63	5	36	1	93
Mulberry St (North to High)	7	0	18	0	25
Mulberry St (High to Carlton)	7	0	9	2	18
Mulberry St (Carlton to Virginia)	4	0	18	1	23
Mulberry St (Virginia to BFNC)	1	0	13	0	14
Mulberry St Totals	19	0	58	3	80
Locust St (North to High)	2	0	16	3	21
Locust St (High to Carlton)	1	0	19	1	22
Locust St (Carlton to Virginia)	2	0	17	0	19
Locust St (Virginia to BFNC)	2	1	3	2	4
Locust St Totals	7	1	55	6	66
High St (Michigan to Mulberry)	11	1	2	0	12
High St (Mulberry to Lemon)	6	0	8	1	15
High St Totals	17	1	10	1	27
Carlton St (Maple to Locust)	13	0	2	0	15
Carlton St (Locust to Lemon)	1	0	8	1	7
Carlton St Totals	14	0	10	1	22

	Cars Parked Prior to 6AM	Departures (6AM-9AM)	Worker Arrivals (6AM-9AM)	Resident Arrivals (6AM-9AM)	Midday Peak Occupancy (11AM-12PM)
Subarea A Totals	120	7	169	12	288

Notes:

This particular parking data collection and analysis does not include segments of Subarea A north of North St due to limited staffing to cover the entire area at this time.

A large number of vehicles (approx 75) were already parked on the northern portions Maple St, and western segments of High St and Carlton St prior to 6AM. Based on comparison to Locust St occupancy (prior to 6AM) it is assumed that these vehicles were associated with the Medical Campus (i.e. early risers). A good portion of these parkers were observed sitting in their cars until approx 6:30 AM and then walking to the Campus.

A significant number of parkers could be identified as construction workers based on outfit.

The peak arrival time clearly occurred between 6:30AM and 7:00AM.

Appendix B – Residential Survey Data

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Fruit Belt Parking Survey

The Buffalo Niagara Medical Campus (BNMC) is conducting a study with the help of a grant through the New York State Energy Research and Development Authority and the New York State Department of Transportation to study and provide recommendations to address parking needs and concerns in the Fruit Belt Neighborhood. The information that you and your neighbors provide in this survey will give the BNMC, the City of Buffalo, and local policymakers a better understanding of residential parking needs, and help us to develop recommendations for policies and programs to improve the quality of the neighborhood. Your input is important, so please take a few minutes to share your thoughts. This survey is confidential, although we do ask you to identify the block you live on so we can determine where any problems are located.

1. How many vehicles does your household have? _____
2. How many vehicles can park at your address? Garage _____ Driveway _____
3. Where do these vehicles most often park? *Please choose a location for each vehicle indicated in Question 1.*

	<u>On-Property/ Driveway</u> Frequency:			<u>On-Street</u> Frequency:			<u>Other (describe)</u>
	Seldom	Sometimes	Frequently	Seldom	Sometimes	Frequently	
Vehicle 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
Vehicle 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
Vehicle 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____

4. Where do visitors park? (circle all that apply) Garage Driveway Street

5. How difficult is it to find on-street parking on your block? (circle one)

Not at all difficult Somewhat difficult Moderately difficult Very difficult Extremely difficult

6. When is it difficult to find on-street parking? (check all that apply)

		Weekdays	Weekends
Morning	7 AM to 12 NOON	<input type="checkbox"/>	<input type="checkbox"/>
Afternoon	12 NOON to 5 PM	<input type="checkbox"/>	<input type="checkbox"/>
Evening	5 to 11 PM	<input type="checkbox"/>	<input type="checkbox"/>
Overnight	11 PM to 7 AM	<input type="checkbox"/>	<input type="checkbox"/>

(Continued on reverse side)

7. How many times a month does on-street parking impact services (home care, garbage pick-up, etc.) at your property? _____ Please explain: _____

8. Please share any additional comments or concerns regarding parking issues in the Fruit Belt, or potential solutions that you would like to have considered. (Please include any special circumstances, such as visiting nurses, repair services, school buses, meals on wheels, etc.)

To help us identify where parking problems are located, please indicate either your address or the block on which you reside: _____

Thank you in advance for your participation. Please feel free to scan and email this survey to emends-aidoo@bnmc.org by **Friday, August 31st**.

You will have several opportunities to turn in the survey personally by Friday, August 31st at different events or locations in the Fruit Belt neighborhood, including:

- National Night Out – August 4th
- Moot Senior Center
- Block Club meetings

You can also find this survey electronically at: <https://www.surveymonkey.com/r/FruitBeltSurvey>

If you have any questions, feel free to contact Ekuia Mends-Aidoo at 716-218-7806. We will be working with neighborhood groups and community stakeholders to distribute the survey results in September.



Postcard used to advertise survey



Fruit Belt Parking Survey

The Buffalo Niagara Medical Campus (BNMC), in conjunction with the City of Buffalo and local policymakers, is conducting a study with the help of a grant through the New York State Energy Research and Development Authority and the New York State Department of Transportation to provide recommendations to address parking needs and concerns in the Fruit Belt Neighborhood.

The information from this survey will lead to a better understanding of residential parking needs, and guide recommendations for policies and programs to improve the quality of the neighborhood.



Sorry we missed you! We need your input:

Please complete the confidential survey by Friday, August 31st, in one of three ways:

- Stop by the Moot Center on Thurs., August 27th from 5-7pm (refreshments provided)
- Visit [Surveymonkey.com/r/FruitBeltSurvey](https://www.surveymonkey.com/r/FruitBeltSurvey)
- Or call Ekua at 716-218-7806 to have a survey sent to you

Thank you in advance for your participation!

We will be working with neighborhood groups and community stakeholders to distribute the survey results in September.

If you have questions, feel free to contact:

Ekua Mends-Aidoo
emends-aidoo@bnmc.org
716-218-7806

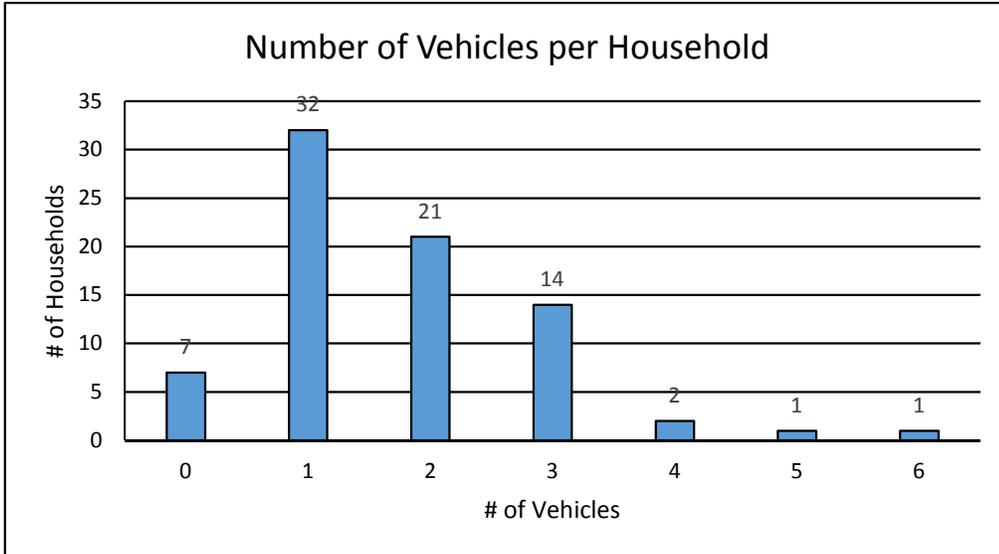
 Buffalo Niagara Medical Campus



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Fruit Belt Parking Survey

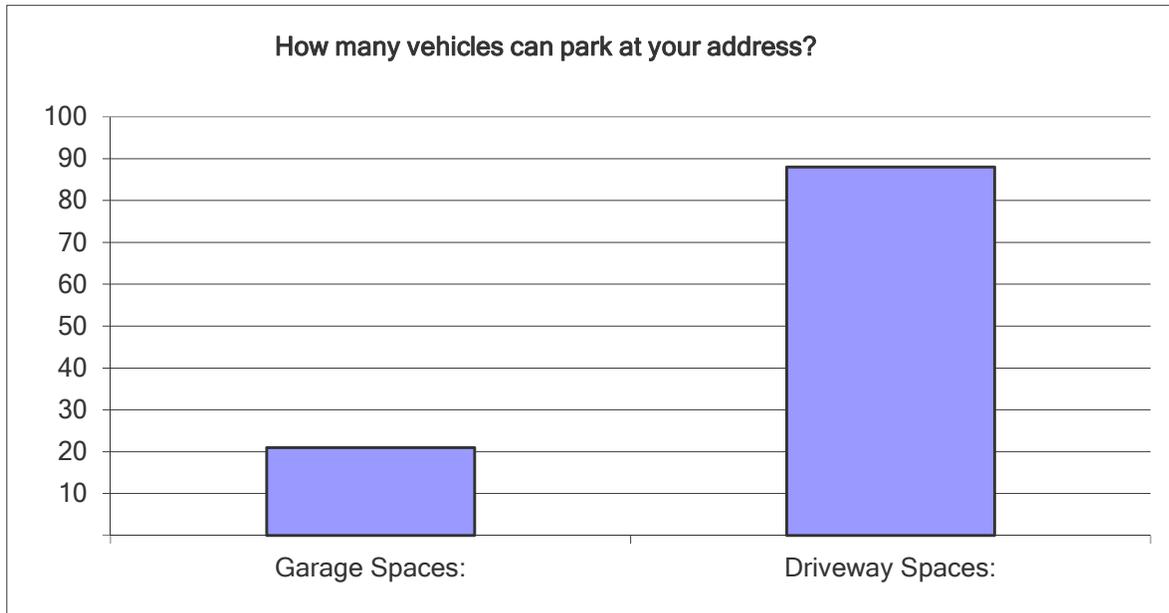
How many vehicles does your household have?	
Answer Options	Response Count
	78
<i>answered question</i>	78
<i>skipped question</i>	0



Fruit Belt Parking Survey

How many vehicles can park at your address?

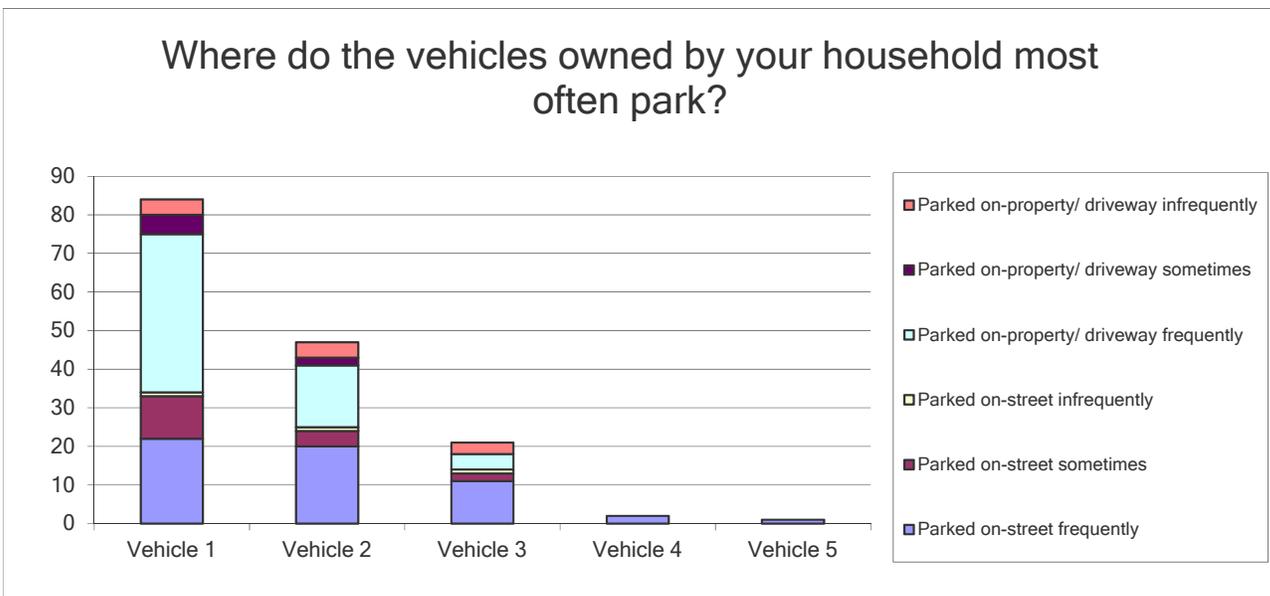
Answer Options	Response Average	Response Total	Response Count
Garage Spaces:	.32	21	63
Driveway Spaces:	1.24	88	73
<i>answered question</i>			76
<i>skipped question</i>			4



Fruit Belt Parking Survey

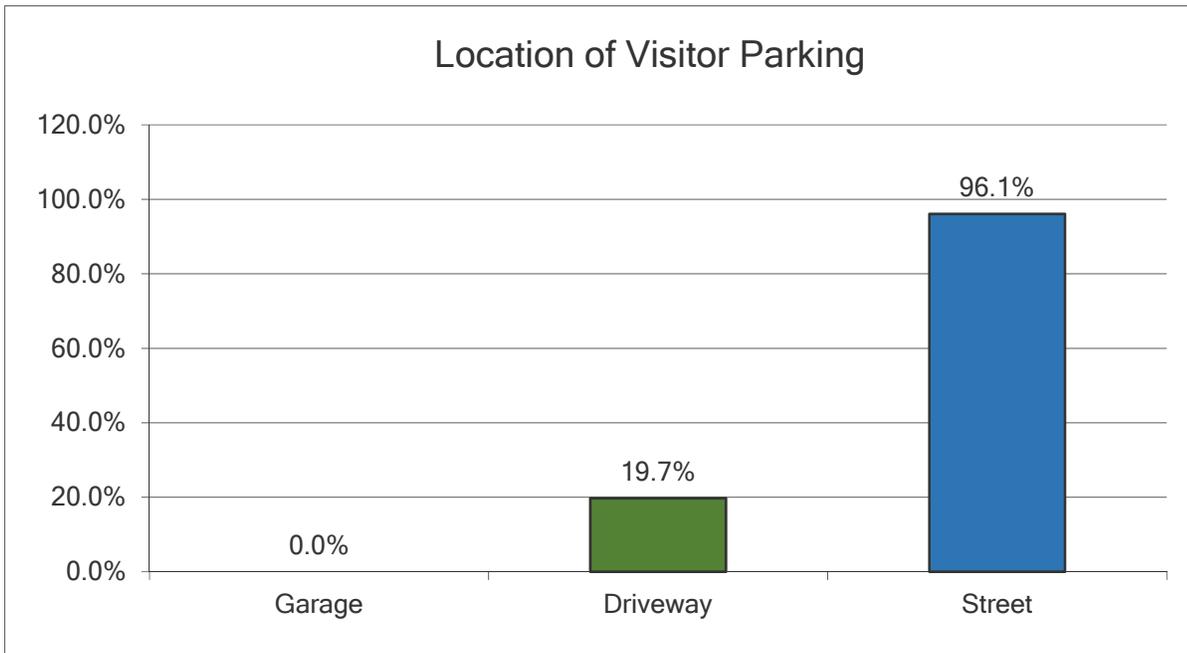
Where do the vehicles owned by your household most often park? Please choose a location for each vehicle indicated in Question 1. Please select just one answer for on-property frequency and one for on-street frequency.

Answer Options	Parked on-property/ driveway infrequently	Parked on-property/ driveway sometimes	Parked on-property/ driveway frequently	Parked on-street infrequently	Parked on-street sometimes	Parked on-street frequently	Response Count
Vehicle 1	4	5	41	1	11	22	75
Vehicle 2	4	2	16	1	4	20	42
Vehicle 3	3	0	4	1	2	11	20
Vehicle 4	0	0	0	0	0	2	2
Vehicle 5	0	0	0	0	0	1	1
Describe other parking arrangements							3
<i>answered question</i>							69
<i>skipped question</i>							9



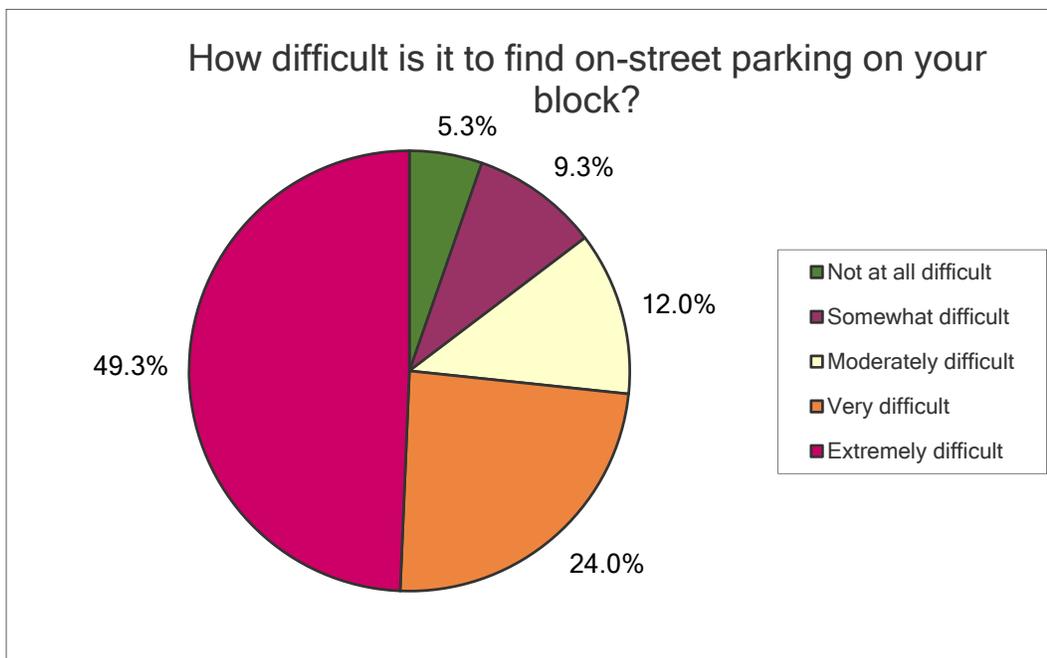
Fruit Belt Parking Survey

Where do visitors park?		
Answer Options	Response Percent	Response Count
Garage	0.0%	0
Driveway	19.7%	15
Street	96.1%	73
<i>answered question</i>		76
<i>skipped question</i>		2



Fruit Belt Parking Survey

How difficult is it to find on-street parking on your block?		
Answer Options	Response Percent	Response Count
Not at all difficult	5.3%	4
Somewhat difficult	9.3%	7
Moderately difficult	12.0%	9
Very difficult	24.0%	18
Extremely difficult	49.3%	37
<i>answered question</i>		75
<i>skipped question</i>		3



Fruit Belt Parking Survey

When is it difficult to find on-street parking? Check all that apply.

Answer Options	Weekdays	Weekends	Response Count
Morning—7am to noon	65	2	71
Afternoon—Noon to 5pm	61	3	68
Evening—5pm to 11pm	9	3	11
Overnight—11pm to 7am	4	3	6
<i>answered question</i>			70
<i>skipped question</i>			8



Fruit Belt Parking Survey

How many times a month does on-street parking impact services (home care, garbage pick-up, etc.) at your property? Please tell us how many times you are impacted and explain the impacts.

Answer Options	Response Count
	60
<i>answered question</i>	58
<i>skipped question</i>	20

Responses

Every garbage pick-up day.
Mobile healthcare issues with parking 3-4x per month
Often. Wheelchair access is a problem. Van can't park.
winter/trash
3/week
20-25 days per month
4 Garbage pick-up
0
Mobile healthcare parking is an issue.
Winter time/plows difficult to plow
Yes. Winter time, school bus cannot get through. Driveway access blocked.
0. Garbage. School buses in winter.
4. Deliveries
7park
8/10/2015
Occasional issues with garbage pickup
5. Problem with garbage pick-up, grocery drop off, snow plow removal, no parking for guests.
Yes. Garbage not getting picked-up due to lack of access
School bus traffic, especially in winter
20. Every weekday.
None.
2/week
17-18
0
Daily, it is very difficult to park in front of my home.
0
Everyday. Mother is in need of mobile care.
Sometimes during winter.
Issues on garbage collection days
Frequent issues with snow plowing.
Frequently impacts medical visits
Occasionally garbage pick-up
Traffic is impacted on garbage days.
3. Trash-pick up, snow plow
Garbage pickup
9. Garbage
0
4. Garbage/snow
Every Wednesday garbage pickup is affected.

Fruit Belt Parking Survey

How many times a month does on-street parking impact services (home care, garbage pick-up, etc.) at your property? Please tell us how many times you are impacted and explain the impacts.

Responses (continued)

4 Garbage Pick-up
4 to 10. Issues with garbage pick-up and visiting nurses.
2-3. Neighbors bringing things for delivery, UPS, family visiting for special occasions.
Services are always impacted by the parking issue.
3
None.
twice a week
4. Home care aid once per week.
3 pr 4 times garbage trucks cannot get down street to get to my garbage Friends have to park blocks away at times as there are no parking
Every garbage collection day
6. People often block the driveway or park so close to it. It makes it hard to get in or out.
No problem
Everyday
0
Every day
4
None

Fruit Belt Parking Survey

Please share any additional comments or concerns regarding parking issues in the Fruit Belt, or potential solutions that you would like to have considered. (Please include any special circumstances, such as visiting nurses, repair services, school buses, meals on wheels, etc.)

Answer Options	Response Count
	57
<i>answered question</i>	57
<i>skipped question</i>	21

Responses

Medical visits borrow neighbors driveway.
Parkers blocking driveway and walkway
Has received parking tickets while unloading groceries.
Issues occur further up the street.
91 Years old. Puts orange cones in front of house to reserve space and people move them.
Block driveway/ at 168 squeeze into spots
Resident is elderly and visitors have difficulty parking and issues getting picked up.
It is very hard to find parking at my house, including guests.
Visiting nurse has trouble parking
People who work on the medical campus should pay to park just like the people who work downtown do.
Winter seems worse
Medical campus should lower parking rates for employees.
Driveway often gets blocked. Elderly folks are forced to park far from their homes and walk.
Issue with medical deliveries.
parking on both sides/hazards
N/A cut driveway off short.
This resident has to move from off-street parking to street when plow service is trying to clear lot. 20 parked cars on street as we speak, only 3 belong to residents of the block.
Weekends are not a problem. Ticketing is expensive for court costs. Can't hold onto spot in front of house. Want a parking permit. "Parking commission says he has no solution." Union making it difficult-"high crime area" is not true. Need more parking in new buildings-too expensive in Michigan garage.
Other side is garbage. Difficult backing out of driveway. Littering (assumed from parkers).
Can medical campus give passes? All parkers are from out of town.
Driveway occasionally gets blocked.
Visitors do not visit for fear of getting another parking ticket. Sometimes school buses do not come for pickup because they cannot get through street due to no snow plow removal, cars parked too close to driveway.
5:00AM-4:00PM Monday-Friday
Morning parking begins at 6AM. Weekends are not bad. Can't tell people to not to park on street.
Need to lower parking price on campus (union to negotiate)
Many of the campus employees who park in the Fruit Belt leave litter in the streets
No street parking available so often stacks cars in driveway. Safety and security concerns about parking so far from house and walking.
Also works as a construction worker on the Campus and pays the daily parking rate.
Lower on-campus parking rates. Double parking. Patrols affected by parking.
The city needs to find a solution.
Issues with medical visits. Cars frequently drive wrong way down on-way streets. Dangerous environment for kids.
Winter is very bad- fewer spaces/more distance
No
Spoke to landlord who is renovating the property
Snow removal issues when cars are blocking driveway.

Fruit Belt Parking Survey

Please share any additional comments or concerns regarding parking issues in the Fruit Belt, or potential solutions that you would like to have considered. (Please include any special circumstances, such as visiting nurses, repair services, school buses, meals on wheels, etc.)

Responses (continued)

No problems
No parking problems on weekends. Cars blocking driveways
Afternoon parking until 3pm. Weekends not too bad. Need a place to park. This year has been worse.
Morning parking starts at 5AM. Parking not as bad Sat or Sun. Since 73- problems have gotten worse since construction. Walkways blocked. Roswell wouldn't let residents to park in lot, need to be friendlier to us.
School bus pickup and drop off is impacted. Kids are dropped off in the street.
School busses have difficulty getting down the street in winter. Driveway occasionally blocked.
Parking Permit Program Resident only parking zones Visitor parking zones Develop Ellicott St Parking Ramp
Many issues occur. People park too close to the driveway.
Don't pay attention to when it is difficult to find on-street parking. Two-way parking is a problem- hard to get down street- especially in winter. Blocking driveway- had someone's car towed- parking enforcement is not helpful.
Have seen ambulance and fire trucks have difficulty getting to close to houses. School busses have issues as well. Winter makes these issues worse.
Mine is a more of a complaint regarding the people who park, that are not from the area. They do not respect the driveways or walk paths in front of homes. A few times my driveway has been blocked by a vehicle three feet in, that I had to drive in the grass to get into my garage. I am sure that if the authorities enforced the parking rules, these people would be more respectful to the area. I am sure if I did those thing in their areas my car would have been towed or ticketed. these driver have tossed thier trash on lawns or in the streets. There have been a number of Starbuck containers showing up on the block.
Blind occupant takes car-drop off away from residence, carry groceries into home for elderly (two in home)
I think there needs to be a parking ramp or area for the hospital people to park. I should be able to park on the street reasonably close to my house with no issues
Nieghbor has medical issues and has and visiting nurse has trouble parking.
Have an easy access number to call a thing company in case people block the drive way.
Parking on only one side. Paint parking spaces.
Parking is very difficult due to the hospital employment
If employees would be mindful of parking so that potentially it won't cause the Fruit Belt's problems after you find a parking place make sure that you are not blocking the driveway

Appendix C – Best Practice Summary

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The description of each strategy included an example of how that strategy is used somewhere today. Those best practices along with a few others are summarized in this Appendix to provide more information regarding each program. Table A-1 provides a guide to the best practices summarized in this Appendix and their location (if available) in the report.

Table C-1. Best Practices Index

Source: C&S Engineers, Inc.

Program Type	Best Practice Example	Location in Report	Location in Appendix
Striping Spaces	Buffalo, NY Complete Streets Initiative	4-2	--
Alternate Side Street Parking	Syracuse, NY- University Hill Area	4-4	--
Residential Permit Program	Ithaca, NY- Cornell University Neighborhood	4-9	C-4
	Boston, MA	--	C-6
	San Francisco, CA	--	C-7
	Pasadena, CA	--	C-9
Residential & Employee Permit Program	Rochester, NY- Corn Hill Neighborhood	4-11	C-10
Parking Benefits District	Austin, TX- West Campus Neighborhood	4-15	C-11

Name	Ithaca Residential Parking Permit System
Location/Study Area	Ithaca, NY
Program	City Residential Parking Permit System
Notes specific to area	Largest community in the Ithaca-Tompkins County metropolitan area. Three colleges (Cornell, Ithaca College & Tompkins Cortland County Community College) bring tens of thousands of students who increase Ithaca's seasonal population during the school year.
Need for Program	If you live in a block that has been designated as being part of the city's Residential Parking Permit System, you may be able to purchase a parking permit from the City Clerk's Office, Public Information & Technology Department.
Nearby Land Uses	
Permit Structure and/or Fee Structure	The permit year runs from August 1 through July 31. Only residents of properties zoned R1 and R2 located in the Residential Parking Permit Zone shall be eligible to purchase parking permits. The city zoning category in which the property is located shall determine the maximum number of permits allowed per dwelling unit. Properties in an R1 zone are hereby allowed access to 2 permits, and no more. Properties in an R2 zone are hereby allowed access to 2 permits per dwelling unit with a maximum of 4 permits and no more per property. Based on city zoning laws the greatest legal number of dwelling units allowed in a structure in an R2 zone is 2. Permits shall be issued to vehicles registered to, or under the control of, residents in the permit area, and are non-transferable. Permits shall be available for sale on July 1 and shall expire on July 31 of the following year. Residents in blocks participating in the Residential Parking Permit System may purchase up to 4 Visitor Passes per year with a limit of 8 passes per property in an R1 zone and 16 passes per property in an R2 zone. Visitor Passes shall be valid for a period of 2 consecutive weeks, and will be issued to a specific vehicle. It shall be a violation of Chapter 260 of the City of Ithaca Municipal Code entitled "Residential Parking Permit System" for residents to purchase permits for people who do not reside in the permit area.
Fees	Permit fee is \$45 Visitor pass is \$10
Time of Operation	Hours in Effect Permit requirements established pursuant to this section shall be in effect during all or a portion of the following times: From Monday to Friday between 9 a.m. and 5 p.m., excluding holidays. Permit holders will be exempt from the 9 a.m. to 1 p.m., and 1 p.m. to - 5 p.m. "no parking" regulations in resident parking permit areas. Street signage will display the restricted hours. Permit holders and non-permit holders must abide by all other city parking restrictions set forth in the Vehicle and Traffic Chapter of the City of Ithaca Municipal Code including the odd/even overnight restriction, 24-hour parking limits, loading zones, handicap parking, etc. Placement of the "no parking" time restrictions will be staggered in order to provide some short-term visitor parking on a block at all times. In the case of blocks with legal on-street parking only on one side, the time restrictions will be split along the legal side of the street.

Additional Operation Details The permits shall be issued to individual residents of a permit area and assigned to a unique vehicle license plate number. A resident is defined as any person, homeowner or renter, living in a dwelling unit in a permit area. The issuance of permits through landlords is hereby prohibited. Homeowners and renters must provide the vehicle registration or copy thereof, of the vehicle in question. Homeowners and renters may prove residency by producing a deed, current lease, driver's license with valid address, telephone or utility bill, or other similar documentation. Permits shall be valid from date of issue through July 31. This is a voluntary program. If a permit holder wishes to transfer a permit to a different vehicle, or there is a change of license plates on a vehicle with a permit, the new license plate number and vehicle identification number must be reported to the City Clerk. A new permit will be issued without charge, only if physical remnants of the old permit are returned. If the physical remnants of the old permit are not returned, the new permit will only be issued if there is an eligible permit available for the property, at a cost of \$45.

Obtaining permits/parking space Purchase a parking permit from the City Clerk's Office, Public Information & Technology Department.

Legislation Rules/Action

- Residents within the residential parking permit zone established by Common Council on May 6, 1998, are required to petition the City Clerk's office for the establishment of a Residential Parking Permit Area.
- A Residential Parking Permit Area within the Residential Parking Permit Zone shall be 1 permit block. Each permit block shall be established according to the block numbers, such as the 100 or 200 block of a street.
- Only R1 and R2 zones, as established in the City Zoning Ordinance Section 325-4 of the Municipal Code of the City of Ithaca are eligible to participate in the Residential Parking Permit System.
- A permit block is 1 city street and its abutting block faces, which differs from a city block. A city block does not include the street.
- The permit block for a corner property shall be determined by the property's assessment address

Permit System Alternative Residents may petition the City Traffic Engineer to install appropriate weekday time restriction signage (such as "No Parking 9 a.m. - 1 p.m.") on their streets. This offers an alternative option for blocks that elect not to participate in the permit system but want the benefits of time restricted parking for their street.

Name	Boston's Resident Permit Parking Program (cityofboston.gov)
Location/Study Area	Boston MA
Program	Resident Parking Permit
Notes specific to area	The city is the third most densely populated large U.S. city of over half a million residents.
Need for Program	Many of the parking spaces on Boston's residential streets are regulated as "Resident Parking Only." A smaller number of parking spaces on these same streets are posted as "Visitor Parking" areas for the guests of neighborhoods residents. Residents who live in areas where parking is regulated for residents-only must apply for a Resident Parking Permit to avoid receiving parking tickets.
Nearby Land Uses	
Permit Structure and/or Fee Structure	NO CHARGE for qualified residents There are no limits on how many permits an individual or household may obtain - the only limit is that one permit is issued per eligible vehicle. Must have paid all parking tickets and complete an application to obtain the permit.
Fees	No fee for permit, but must apply for permit and must renew every two years.
Time of Operation	Parking meters Monday through Saturday, 8am-8pm. Cost \$1.25 per hour or \$0.25 for 12 minutes. 2 hour maximum unless otherwise posted.
Additional Operation Details	Meters free on Sundays and government recognized holidays. No time limit.
Obtaining permits/parking space	Permits can be obtained online or in person at the Parking Division at Office of the Parking Clerk.
Legislation Rules/Action	<u>Petition Requirements</u> Typically, a new Program, or an expansion thereof, must be initiated by neighborhood residents in the form of a petition signed by a minimum of 51% of residents who: Are 18 years of age or older; and Live on the streets proposed to be included in the Program. In general, it is required that more than one street in a neighborhood is included in a new Program request. You will be asked to <u>include the following</u> with your petition signatures: City of Boston neighborhood; Streets proposed to be included in the Resident Parking Program; and A description of current parking problem on these streets. <u>How to Submit a Petition:</u> Petitions should be submitted to the Mayor's Office of Neighborhood Services, to the attention of the coordinator for the neighborhood where the Program is being proposed. <u>What Happens After You Submit:</u> Neighborhood Coordinators will work with the Boston Transportation Department (BTD) and the Office of the Parking Clerk to ensure that a department representative is in attendance at a community meeting to discuss the proposal in detail. As part of the process, BTD will need to make a site visit to the location and engineering plans will need to be created prior to signs being fabricated and posted.

Legislation Rules/Action

To add a street block or address to an existing Residential Permit Area a petition signed by more than fifty percent of the households on each proposed block must be submitted to the SFMTA (one signature per household). Requirements The proposed block(s) must be contiguous to an existing residential permit parking area. The proposed block(s) must be of a low- or medium-density residential character -- high-density land use is generally not suitable for RPP At least eighty percent of the legal on-street parking spaces within the proposed area are occupied during the day. Residents on a metered block may petition to have their addresses be included as part of a residential permit parking area; however, a petition for an unmetered block must also be submitted at the same time. Existing meters will not be removed. To create a new Residential Permit Parking Area, a petition signed by at least 250 households (one signature per household) in the proposed area must be submitted to the SFMTA. The proposed block(s) must be contiguous to each other and must contain a minimum of one mile of street frontage. The proposed block(s) must be of a low- or medium-density residential character -- high-density land use is generally not suitable for RPP At least fifty percent of the vehicles parked on the street in the proposed area must be non-resident vehicles. At least eighty percent of the legal on-street parking spaces within the proposed area are occupied during the day.

Name	Preferential Parking Permit District (PPPD) of Pasadena City College (PCC)
Location/Study Area	Pasadena CA, Neighborhood bordering Pasadena City College and California Institute of Technology
Program	Preferential Parking Permit Program
Notes specific to area	This is a selected area of the PPPD, it is one of eight in the city
Need for Program	Spillover from colleges bordering the northern and western side of this neighborhood and off Street Parking is inadequate.
Nearby Land Uses	Pasadena City College, California Institute of Technology, Robinson Stadium
Permit Structure and/or Fee Structure	<u>Resident Permit</u> : Each household within a PPP district can receive up to 3, with the submission of a current and valid vehicle registration; <u>Visitor Permit</u> : Each household with a PPP district can receive up to 3 visitor permits (owner is responsible for monitoring their use); <u>Daily Permit</u> : each household within a PPP district can receive guest daily hand tags (distributed in batches of 10)
Fees	<u>Initial set (\$10)</u> : 3 residential permits, 3 guest permits, and 10 one-day hang tags; <u>Additional \$5</u> : additional 10 pack of one-day hand tags; <u>Special Event PP Exemption (\$20)</u> : for 40 or more vehicles, a notification letter (including date, hours, number of expected vehicles, street name and boundaries) must be sent to the Parking Office for approval
Time of Operation	Always
Additional Operation Details	N/A
Obtaining permits/parking space	Application form must be completed and submitted to Parking Division.
Legislation Rules/Action	Additional PPP districts can be initiated by citizen request or a motion of the City Council. Once the process begins DOT will meet with property owner to discuss parking concerns and mitigation measures. If expansion is found necessary, 67% of property owners abutting the street segment must agree to a parking study. The proposed PP district and corresponding parking study is submitted to the Transportation Advisory Committee. If a majority of property owner's concurrent within the prosed district agree to proceed with the proposal, the district is then established. The City Council approves PPP district boundaries and the DOT files an NOE with the LA County Recorder

Name	Corn Hill
Location/Study Area	Corn Hill, Rochester NY
Program	Residential and Employee Permit Program
Notes specific to area	Oldest residential neighborhood in Rochester
Need for Program	Area is walkable to downtown, there is a need for residents and employees of the neighborhood to be able to find on-street parking during daytime hours
Nearby Land Uses	Mainly residential, Paul Louis area (ice-skating rink), Nathaniel Rochester Community School, Adams Street Center (indoor rec pool), Rochester Correctional Facility, and multiple restaurants
Permit Structure and/or Fee Structure	<u>Residential Permit</u> : comes with 2 free visitor passes, valid for 1 year, limited to 2/household); <u>Employee Permit</u> : valid for 1 year, limited to 1 per household); <u>Visitor Pass</u> : valid for one year, limited to 2/household, can be purchased individually also
Fees	<u>Residential Permit Pack</u> : \$24; <u>Employee Permit</u> : \$24, <u>Visitor Pass</u> : \$12 each when purchased individually from residential permit pack
Time of Operation	Permits are required Monday through Friday, 8AM-5PM on marked streets
Additional Operation Details	All permits expire on June 30 of that year and for this reason they can be purchased on a pro-rated basis. Permit streets must have signs installed and maintained by Monroe County Traffic Engineering. The program is primarily enforced by the Bureau of Parking Program at least twice daily. Secondary enforcement is through the Rochester Police Department.
Obtaining permits/parking space	Permits can be purchased at the parking and Municipal Code Violations Office with the proper documentation (proof of residency, proof of occupation location, photo ID, and/or vehicle registration)
Legislation Rules/Action	The Director of Parking may make changes to the permit program. If this happened, the Corn Hill Neighbors Association must be informed in writing.

Name	Austin PBD at West Campus
Location/Study Area	West Campus, Austin TX
Program	Parking Benefit District
Notes specific to area	West Campus area receives about 75,000 visitors to the campus daily. The neighborhood contains many non-typical households in the form of student housing. This is a selected area of multiple PBDs
Need for Program	Spillover from University Campus and Guadalupe street into residential area. Need for on street parking for residents, due to neighborhood being limited to the west. City passed a land-use plan in 2004 that lets developers build taller and denser buildings in West Campus as long as they provide public benefits in return, this has caused an increase in residents
Nearby Land Uses	Border on West: Shoal Creek Park, Border on East: Guadalupe St (commercial shopping area) and the University of Texas at Austin
Permit Structure and/or Fee Structure	West Campus residents who live in a building that was built in or before 1959 (when the city did not require builders to have parking available) can apply for a parking permit
Fees	\$1/hour for metered parking, residential parking permit: \$20/year for qualified residents
Time of Operation	8am-6pm Monday through Wednesday, 8am-12am Thursday through Friday, & 11am-12am Saturday; 3 hour parking limit
Additional Operation Details	A district must be at least 96 parking meters (the minimum number of spaces required to pay for maintenance and operation fees). 51% of the funds from the paid parking spaces that is in excess of the cost of maintenance and operation is set aside for future district improvements. Funds may also be used in conjunction with other city funds for neighborhood improvements within the district. Eligible improvements include: curb ramps, bicycle lanes, sidewalks, traffic calming, plazas, landscaping, increased maintenance, etc.
Obtaining permits/parking space	Payment at meters. Permits can be obtained by applying at the City of Austin DOT

Legislation Rules/Action

Prior to application, both a meeting with the director's staff and a meeting with the community are required. Application requirements are then fulfilled and the Urban Transportation Commission holds a public hearing, within the 60 day application submission period. Finally an ordinance is adopted by the city council to include a list of improvements to be funded by the revenue. A district shall remain in existence until each improvement identified by the ordinance in creating the district is complete, unless terminated earlier by the council. Earlier termination will occur if metered parking spaces do not generate more than the amount needed to pay annual expenses.

Appendix D – Preferred Alternatives Summary

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Combined Alternative Strategies:

Combined Alternative 1:

A single fee structure is used for employee and residential permits. Sides are not designated for residents or employees and a generic employee or residential permit can be used to park anywhere within the Fruit Belt.

Combined Alternative 2:

Employee permits will be priced differently per street with permit prices decreasing by street for each street east of Michigan St. Sides are not designated for resident or employee parking but permits are designated per street.

Combined Alternative 3:

A single fee structure is used for employee and residential permits. One side of the street is designated for employees while the opposing is designated for residents.

- 3a: This alternative does not incorporate alternating sides so that employee and residential parking sides remain constant.
- 3b: This alternative incorporates alternating sides so that employee and residential parking sides switch depending on the calendar day.

Combined Alternative 4:

Employee permits will be priced differently per street with permit prices decreasing by street for each street east of Michigan St. One side of each street is designated for employees while the opposing is designated for residents.

- 4a: This alternative does not incorporate alternating sides so that employee and residential parking sides remain constant.
- 4b: This alternative incorporates alternating sides so that employee and residential parking sides switch depending on the calendar day.

Combined Alternative 5:

Employee permits will be priced differently per street with permit prices decreasing by street for each street east of Michigan St. One side of each street is designated each day for permit parking with the supply divided between employee and residential permits. This alternative incorporates alternating sides so that parking sides switch depending on the calendar day.

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PREFERRED ALTERNATIVES SUMMARY TABLE

Combined Alternatives	1	2	3a	3b	4a	4b (Option 1: Two-Side Alternating Parking)	5 (Option 2: One-Side Alternating Parking)
Description	A single fee structure is used for employee and residential permits. Sides are not designated for residents or employees and a generic employee or residential permit can be used to park anywhere within the Fruit Belt.	Employee permits will be priced differently per street with permit prices decreasing by street for each street east of Michigan St. Sides are not designated for resident or employee parking but permits are designated per street.	A single fee structure is used for employee and residential permits by area. One side of the street is designated for employees while the opposing is designated for residents. This alternative does not incorporate alternating sides so that employee and residential parking sides remain constant.	A single fee structure is used for employee and residential permits by area. One side of the street is designated for employees while the opposing is designated for residents. This alternative incorporates alternating sides so that employee and residential parking sides switch depending on the calendar day.	Employee permits will be priced differently per street with permit prices decreasing by street for each street east of Michigan St. One side of each street is designated for employees while the opposing is designated for residents. This alternative does not incorporate alternating sides so that employee and residential parking sides remain constant.	Employee permits will be priced differently per street with permit prices decreasing by street for each street east of Michigan St. One side of each street is designated for employees while the opposing is designated for residents. This alternative incorporates alternating sides so that employee and residential parking sides switch depending on the calendar day. With Option 1, there are 500 dedicated parking spaces for employees and 500 dedicated parking spaces for residents.	Employee permits will be priced differently per street with permit prices decreasing by street for each street east of Michigan St. One side of each street is designated each day for permit parking with the supply divided between employee and residential permits. This alternative incorporates alternating sides so that parking sides switch depending on the calendar day. With Option 2, there are 250 dedicated parking spaces for employees and 250 dedicated parking spaces for residents.
Ease of Implementation	<ul style="list-style-type: none"> • Signage indicating permit streets • Distribution of employee permits and residential permits 	<ul style="list-style-type: none"> • Signage indicating permit streets • Distribution of different types of employee permits for each street • Development of a fee structure • Distribution of residential permits 	<ul style="list-style-type: none"> • Signage indicating permit streets • Distribution of employee and residential permits 	<ul style="list-style-type: none"> • Signage indicating permit streets and signage for alternate side-street parking • A “switchover” time must be established • Distribution of employee and residential permits 	<ul style="list-style-type: none"> • Signage indicating permit streets • Distribution of different types of employee permits for each street • Development of a fee structure • Distribution of residential permits 	<ul style="list-style-type: none"> • Signage indicating permit streets and for alternate side-street parking • A “switchover” time must be established • Distribution of different types of employee permits for each street • Development of a fee structure • Distribution of residential permits 	<ul style="list-style-type: none"> • Signage indicating permit streets, signage for alternate side-street parking and signage for employee v. residential permit areas • A “switchover” time must be established • Distribution of different types of employee permits for each street • Development of a fee structure • Distribution of residential permits
Difficulty of Enforcement	<ul style="list-style-type: none"> • Enforcement for permit use 	<ul style="list-style-type: none"> • Enforcement for permit use • Enforcement for correct street 	<ul style="list-style-type: none"> • Enforcement for permit use • Enforcement for correct side of the street 	<ul style="list-style-type: none"> • Enforcement for permit use • Enforcement for the correct side of street by time of day 	<ul style="list-style-type: none"> • Enforcement for permit use • Enforcement for correct street • Enforcement for correct side of the street 	<ul style="list-style-type: none"> • Enforcement for permit use • Enforcement for correct street • Enforcement for correct side of the street by time of day 	<ul style="list-style-type: none"> • Enforcement for permit use • Enforcement for correct street • Enforcement for correct side of the street by time of day • Enforcement for correct portion designated for employee v. residential
Revenue Potential	<ul style="list-style-type: none"> • Revenue dependent upon cost of employee parking permit. If cost of permit is \$50.00 there is a potential monthly revenue of \$25,000 • Costs of implementation and enforcement factors 	<ul style="list-style-type: none"> • Revenue dependent upon cost of employee parking permit. If cost of permit is \$50 on Maple and decreases by \$5 for each street east (with North and Carlton at \$35) there is a potential monthly revenue of approximately \$20,000. 	<ul style="list-style-type: none"> • Revenue dependent upon cost of employee parking permit. If cost of permit is \$50.00 there is a potential monthly revenue of approximately \$25,000 • Costs of implementation and enforcement factors 	<ul style="list-style-type: none"> • Revenue dependent upon cost of employee parking permit. If cost of permit is \$50.00 there is a potential monthly revenue of approximately \$25,000 • Costs of implementation and enforcement factors 	<ul style="list-style-type: none"> • Revenue dependent upon cost of employee parking permit. If cost of permit is \$50 on Maple and decreases by \$5 for each street east (with North and Carlton at \$35) there is a potential monthly revenue of approximately \$20,000. 	<ul style="list-style-type: none"> • Revenue dependent upon cost of employee parking permit. If cost of permit is \$50 on Maple and decreases by \$5 for each street east (with North and Carlton at \$35) there is a potential monthly revenue of approximately \$20,000. 	<ul style="list-style-type: none"> • Revenue dependent upon cost of employee parking permit. If cost of permit is \$50 on Maple and decreases by \$5 for each street east (with North and Carlton at \$35) there is a potential monthly revenue of approximately \$10,000.

		<ul style="list-style-type: none"> Costs of implementation and enforcement factors 			<ul style="list-style-type: none"> Cost of implementation and enforcement factors 	<ul style="list-style-type: none"> Cost of implementation and enforcement factors 	<ul style="list-style-type: none"> Cost of implementation and enforcement factors
Pros for Residents	<ul style="list-style-type: none"> Residents will not have to move car at certain times and will be able to park on either side of the street 	<ul style="list-style-type: none"> Residents will not have to move car at certain times and will be able to park on either side of the street The amount of employees able to park per street will be controlled 	<ul style="list-style-type: none"> Residents will not have to move car at certain times and will be able to park on either side of the street The amount of employees able to park per street will be controlled 	<ul style="list-style-type: none"> The amount of employees able to park per street will be controlled A lower supply of nighttime employees will mean that one side of the street will be more clear of vehicles for daily street cleaning/snow plowing 	<ul style="list-style-type: none"> Residents will not have to move car at certain times and will be able to park on either side of the street The amount of employees able to park per street will be controlled 	<ul style="list-style-type: none"> The amount of employees able to park per street will be controlled No permitted parking after "switchover" time will mean that one side of the street will be more clear of vehicles for daily street cleaning/snow plowing This alternative will meet the existing parking demand for residents 	<ul style="list-style-type: none"> The amount of employees able to park per block will be controlled No permitted parking after "switchover" time will mean that one side of the street will be more clear of vehicles for daily street cleaning/snow plowing Designated parking spaces will be available for residents with signage on each block Will accommodate the existing parking demand for residents (75-80 vehicles - based on data collected for this study)
Cons for Residents	<ul style="list-style-type: none"> Although cost and supply of employee permits may reduce employee occupancy, streets closest to BNMC will continue to be utilized Residents will be limited to a certain number of permits per household 	<ul style="list-style-type: none"> Residents will be limited to a certain number of permits per household 	<ul style="list-style-type: none"> Residents will only ever be able to park on one side of the street- this may inconvenience residents who will never be able to park in front of their homes Since residents will never have to move their cars, this could create snow plowing and street cleaning issues Residents will be limited to a certain number of permits per household 	<ul style="list-style-type: none"> Residents will have to move their cars at "switchover" times Residents will not always be able to park on the side of the street that their house is on Residents will be limited to a certain number of permits per household 	<ul style="list-style-type: none"> Residents will only ever be able to park on one side of the street- this may inconvenience residents who will never be able to park in front of their homes Since residents will never have to move their cars, this could create snow plowing and street cleaning issues Residents will be limited to a certain number of permits per household 	<ul style="list-style-type: none"> Residents will have to move their cars at "switchover" times Residents will not always be able to park on the side of the street that their house is on Residents will be limited to a certain number of permits per household 	<ul style="list-style-type: none"> Residents will have to move their cars at "switchover" times Residents will not always be able to park on the side of the street that their house is on Residents will be limited to a certain number of permits per household Resident marked spaces are limited
Pros for Employees	<ul style="list-style-type: none"> Parking will be more easily available for permit holders Employees with permits will be able to park anywhere legally permitted on permit streets Employees will not have to move their cars at certain times 	<ul style="list-style-type: none"> Parking will be more easily available for permit holders Employees will be able to park on either side of the street Employees will not have to move their cars at certain times 	<ul style="list-style-type: none"> Parking will be more easily available for permit holders Employees will not have to move their cars at certain times 	<ul style="list-style-type: none"> Parking will be more easily available for permit holders 	<ul style="list-style-type: none"> Parking will be more easily available for permit holders 	<ul style="list-style-type: none"> Parking will be available for permit holders Will accommodate the existing and future demand through Orange Street 	<ul style="list-style-type: none"> Parking will be available for permit holders
Cons for Employees	<ul style="list-style-type: none"> Permits must be purchased Occupancy cannot be controlled by street, so there is no guarantee of being able to park closest to BNMC 	<ul style="list-style-type: none"> Permits must be purchased and permits per street will be limited Employees will only be able to park on the street to which their permit is assigned or any 	<ul style="list-style-type: none"> Permits must be purchased and permits per street will be limited Employees will be limited to parking on one side of the street 	<ul style="list-style-type: none"> Permits must be purchased and permits per street will be limited Employees will be limited to parking on one side of the street 	<ul style="list-style-type: none"> Permits must be purchased and permits per street will be limited Employees will be limited to parking on one side of the street and the streets for which their permit is assigned 	<ul style="list-style-type: none"> Permits must be purchased and permits per street will be limited Employees will be limited to parking on one side of the street and the streets for which their permit is assigned 	<ul style="list-style-type: none"> Permits must be purchased and permits per street will be limited Employees will be limited to parking on one side of the street and the streets for which their permit is assigned

		streets east of their permit street.		• Employees must move their vehicles at “switchover” times		• Employees must move their vehicles at “switchover” times	• Employees must move their vehicles at “switchover” times • Does not accommodate the existing and future demand through Orange Street
Number of Permits (assume household factor of 1.5 and 3 permit/household)	<ul style="list-style-type: none"> • Employee Permits = 503 (with buffer of 85% effective supply = 427 employee permits) • Residential Permits = 2,256 • Oversells 1,688 res. permits for entire study area • For amount oversold by street, see Table 1. and compare 3 permits per household column to largest on-street supply column 	<ul style="list-style-type: none"> • Employee Permits = 503 (with buffer of 85% effective supply = 427 employee permits) • Residential Permits = 2,256 • Oversells 1,688 res. Permits for entire study area • For amount oversold by street, see Table 1. and compare 3 permits per household column to largest on-street supply column 	<ul style="list-style-type: none"> • Employee Permits = 503 (with buffer of 85% effective supply = 427 employee permits) • Residential Permits = 2,256 • Oversells 1,688 res. Permits for entire study area • For amount oversold by street, see Table 1. and compare 3 permits per household column to largest on-street supply column 	<ul style="list-style-type: none"> • Employee Permits = 503 (with buffer of 85% effective supply = 427 employee permits) • Residential Permits = 2,256 • Oversells 1,753 res. Permits for entire study area • For amount oversold by street, see Table 1. and compare 3 permits per household column to smallest on-street supply column 	<ul style="list-style-type: none"> • Employee Permits = 503 (with buffer of 85% effective supply = 427 employee permits) • Residential Permits = 2,256 • Oversells 1,688 res. Permits for entire study area • For amount oversold by street, see Table 1. and compare 3 permits per household column to largest on-street supply column 	<ul style="list-style-type: none"> • Employee Parking Spaces = 503 (with buffer of 85% effective supply = 427 employee permits) • Residential Permits = 2,256 • Oversells 1,753 residential permits for entire study area • For amount oversold by street, see Table 1. and compare 3 permits per household column to smallest on-street supply column 	<ul style="list-style-type: none"> • Employee Parking Spaces = 250 (with buffer of 85% effective supply = 213 employee permits) • Residential Permits = 2,256 • Oversells 2,006 residential permits for entire study area • For amount oversold by street, see Table 1. and compare 3 permits per household column to residential & employee on-street supply column for Option 2
Number of Permits (assume each res parcel with a driveway will not need a permit; household factor of 1.5; and 3 permit/household)	<ul style="list-style-type: none"> • Employee Permits = 503 (with buffer of 85% effective supply = 427 employee permits) • Residential Permits = 1,134 • Oversells 566 res. permits for entire study area • For amount oversold by street, see Table 2 and compare 3 permits per household column to the largest on-street supply column 	<ul style="list-style-type: none"> • Employee Permits = 503 (with buffer of 85% effective supply = 427 employee permits) • Residential Permits = 1,134 • Oversells 566 res. Permits for entire study area • For amount oversold by street, see Table 2 and compare 3 permits per household column to the largest on-street supply column 	<ul style="list-style-type: none"> • Employee Permits = 503 (with buffer of 85% effective supply = 427 employee permits) • Residential Permits = 1,134 • Oversells 566 res. Permits for entire study area • For amount oversold by street, see Table 2 and compare 3 permits per household column to the largest on-street supply column 	<ul style="list-style-type: none"> • Employee Permits = 503 (with buffer of 85% effective supply = 427 employee permits) • Residential Permits = 1,134 • Oversells 631 permits for entire study area • For amount oversold by street, see Table 2 and compare 3 permits per household column to the smallest on-street supply column 	<ul style="list-style-type: none"> • Employee Permits = 503 (with buffer of 85% effective supply = 427 employee permits) • Residential Permits = 1,134 • Oversells 566 res. Permits for entire study area • For amount oversold by street, see Table 2 and compare 3 permits per household column to the largest on-street supply column 	<ul style="list-style-type: none"> • Employee Parking Spaces = 500 (with buffer of 85% effective supply = 427 employee permits) • Residential Permits = 1,134 • Oversells 631 permits for entire study area • For amount oversold by street, see Table 2. and compare 3 permits per household column to smallest on-street supply column 	<ul style="list-style-type: none"> • Employee Parking Spaces = 250 (with buffer of 85% effective supply = 213 employee permits) • Residential Permits = 1,134 • Oversells 884 permits for entire study area • For amount oversold by street, see Table 2. and compare 3 permits per household column to residential & employee on-street supply column for Option 2

Assumptions:

- For all alternatives, residential permits are assumed to be free for qualified residents. Residential permits are also valid for anywhere within the study area and are not restricted by street.
- Residential parcels were multiplied by a factor of 1.5 to accommodate for multifamily homes to create an estimate household size per parcel.
- For streets with non-alternating side-street parking, it is assumed that the side of the street with a larger supply will be designated for residents
- The study area in which permits will be assigned is to be from Michigan St. to Orange St. and is bordered by Goodell St. and Best St.
- Permits will not be required on weekends
- For all alternatives, employee permits that are designated by street will be able to park on streets east of their permitted street if unable to find parking on the street for which their permit is designated
- For estimation of revenue potential, the supply of the lower side of each street from Maple to Orange was used to ensure employee supply will be available no matter which side is legal on any given day
- Commercial supply has been subtracted from the available on-street supply, however 43 additional spaces must be distributed to create a study area in which 20% of the supply is metered.

Table 1. Assumes two residential permits and one visitor permit per household

	# of Residential Parcels			# of Permits per Household (both sides of street)				Smallest On-Street Supply Option 1	Largest On-Street Supply Option 1	Residential On-Street Supply Option 2	Employee On-Street Supply Option 2
	Smaller On-Street Supply Side	Larger On-Street Supply Side	Combined	1	2	3	4				
Michigan	11		11	17	33	50	66	53	0	0	0
Maple	15	51	66	99	198	297	396	85	106	42	43
Mulberry	49	53	102	153	306	459	612	98	100	51	50
Locust	48	49	97	146	291	437	582	95	100	49	45
Lemon	42	42	84	126	252	378	504	84	94	39	44
Orange	38	44	82	123	246	369	492	86	86	47	39
Best	1		1	2	3	5	6	6	0	0	0
North	2	17	19	29	57	86	114	18	40	9	9
High	9	20	29	44	87	131	174	0	0	0	0
Carlton:	15	7	22	33	66	99	132	37	42	17	20
Total (without Michigan or Best):				753	1,503	2,256	3,006	503	568	254	250

Note: Option 2 totals reflect smallest supply

Table 2. Assumes two residential permits and one visitor permit per household AND that residential parcels with driveways will not require permits

	Total residential parcels	Total residential parcels with known driveways	Total residential parcels without driveways or not known	# of Permits per Household (both sides of street)				Smallest On-Street Supply Option 1	Largest On-Street Supply Option 1	Residential On-Street Supply Option 2	Employee On-Street Supply Option 2
				1	2	3	4				
Michigan	11	7	4	6	12	18	0	53	0	0	0
Maple	66	27	39	59	118	177	39	85	106	42	43
Mulberry	102	51	51	77	154	231	39	98	100	51	50
Locust	97	52	45	68	136	204	46	95	100	49	45
Lemon	84	36	48	72	144	216	36	84	94	39	44
Orange	82	42	40	60	120	180	45	86	86	47	39
Best	1	1	0	0	0	0	0	6	0	0	0
North	19	10	9	14	28	42	8	18	40	9	9
High	29	20	9	14	28	42	0	0	0	0	0
Carlton	22	13	9	14	28	42	19	37	42	17	20
Total (without Michigan or Best):				378	756	1,134	1,512	503	568	254	250

Note: Option 2 totals reflect smallest supply

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Appendix E – Public Participation

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Steering Committee Notes

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Fruit Belt Neighborhood Parking Study

Steering Committee Kick-off Meeting Notes

7/13/15

Members in Attendance:

Harvey Strassburg (Roswell Park Cancer Inst)
Robert Bragg (Kaleida Health)
William Smith (BNMC)
Patrick Kilcullen (BNMC)
Jamie Hamann-Burney (BNMC)
Ekua Mends-Aidoo (BNMC)
Jonathan McNeice (BNMC)
Veronica Nichols (Fruit Belt McCarley Gardens Housing Task Force)
Deane Wiggins (Fruit Belt United)
Anthony Wiggins (Fruit Belt United)
Orlando Boykin (Fruit Belt Resident)
Annette Lott (Fruit Belt United)
Dennice Barr (Fruit Belt Advisory Council)
Leah Halton-Pope (Office of Assemblyperson Crystal Peoples-Stokes)
Kim Faben (C&S Companies)

1. **Comment:** The issue is that employees are not currently penalized for parking in the neighborhood. If you don't prohibit it, everyone will continue to park there. Can the institutions put penalties in place to stop employees from parking in the neighborhoods?
 - a. **Response:** A purpose of this study is to develop a plan/program that will meet Fruit Belt resident parking demands and that will either prohibit or create a fee structure for employee parking.
2. **Comment:** Senator Flannigan had to bring the recent parking legislation to the floor and he did not. Representatives from Kennedy's office will try again in January.
 - a. **Comment:** How can we make state republicans take this seriously? How can we be proactive about getting them to understand its importance?
 - b. **Response:** This study should assist in developing the argument in favor of the resident parking legislation.
3. **Comment:** We do not want this study to recommend turning green space in the Fruit Belt into off street parking, like what is happening along Michigan Avenue.
 - a. **Response:** This study will focus primarily on on-street parking programs.
4. **Comment:** It's not just employee issues, there are 17-21 churches in the Fruit Belt that increase parking demand during events.

5. **Comment:** Current legislation indicates that 20% of parking should be dedicated to employees/outside parkers.
 - a. **Response:** One of the goals of this study is to determine exactly how much parking can be dedicated to employee/outside parkers, based on resident parking needs.
6. **Comment:** What about future development? How is this looking at if more employees start working on the Campus or if more of the Fruit Belt is developed for commercial/residential uses? These things would increase the amount of spaces needed for residents/shoppers and decrease spaces for employees.
 - a. **Response:** The study will take into account future growth on campus including changes in parking supply through 2020. Based on other planning studies being done in the area, we can also take any known developments in the neighborhood into consideration.
7. **Comment:** Why doesn't the legislation's boundaries include Virginia Street and below? The parking data shows that these areas are heavily impacted, and if they aren't included, everyone will just park there instead since it won't be regulated.
 - a. **Response:** It was difficult to get political support for such a large study area. The area was expanded from what it originally was, but expanding it anymore would have made it more difficult to get passed in Albany. This study will look at the entire neighborhood (study area) and can recommend amendments to the legislation which can be made if necessary.
8. **Comment:** Since the major opposition is from CSEA, should they be on the Steering Committee? And should the NFTA be on the committee as well?
 - a. **Response:** The Committee might be too combative if CSEA is part of it, based on recent comments in their objections to the legislation. However, the project team and representatives will continue to discuss the project with them and educate them on the available alternatives and on our ongoing parking and transportation initiatives. We will also extend an invite to the NFTA.
9. **Comment:** Does Roswell subsidize parking for their employees?
 - a. **Response:** Negotiations with the unions regarding employee parking began years ago (20-30+ years). Since then, parking rates have been incrementally increased such that parking is now \$55/month for Roswell employees.
10. **Comment:** If funds are collected for Fruit Belt parking, what would the funds be used for?
 - a. **Comment:** What about participatory budgeting as an option, let the community vote on how to spend the money.
 - b. **Response:** This study will provide recommendations for the financial management of the proposed plan/program based on best practices from around the country and input from City officials.
11. **Comment:** The data is looking at current and future parking demands, but are there ever times when the employee parking demand is even higher? I.e., are more people working at Kaleida during Christmas, special events, etc...?
 - a. **Response:** The study will focus more on typical day-to-day parking demands, but we should at least consider potential increased demands from special events.

12. **Comment:** There is a shuttle (Roswell public safety) that will drive people from Roswell to their car in the Fruit Belt. Perhaps that could be used to help determine the number of Rosell employee parkers in the Fruit Belt.
13. **Comment:** Sanitation workers have difficulty picking up garbage because of vehicles parked so close together. If they can't get to it, the garbage does not get picked up.
14. **Comment:** Mobile health care workers in the neighborhood also often have a hard time finding a place to park when treating their Fruit Belt patients.
15. **Comment:** Since it will take a while to conduct a study, get approvals, and implement any sort of plan/program, what will be done to address immediate needs/concerns?
16. **Comment:** Are there any interim solutions that can be put in place for handicapped residents, such as handicap only parking spaces on-street?
 - a. **Response:** City officials are a key part of this Steering Committee and it would be best for us to discuss with them what can be done in the short-term, such as dedicated on-street handicapped spaces for elderly residents or those with mobility issues.

A draft residential survey was handed out to committee members for comment/feedback

1. **Proposed Survey Question:** How difficult is it for medical visits to occur for Fruit Belt residents due to parking congestion? (Medicine drop-offs, doctor visits, etc...)
2. **Proposed Survey Question:** Has there been a time when sanitation workers are unable to pick up your garbage due to on-street parking congestion?
3. **Survey Comment:** Can there be a survey for businesses/churches too, since they have parking demands?
4. **Survey Comment:** Can an incentive be offered to those that complete the survey?
 - a. **Response:** BNMC will look into that option.
5. **Survey Comment:** Door-to-door was suggested as the best distribution method for the survey. Fruit Belt resident members of the committee offered their services to promote and distribute the survey to other residents.

Survey Next Steps

- Feedback on survey within two weeks, by July 27th
- Send survey out the week of August 3rd and get info back by August 31st.
- Best chance is to go door to door. SC members volunteered to help with this. BNMC staff members do not have the capacity to perform door-to-door surveying alone.

Follow-up for team/Next steps:

1. Data requested (BNMC) – what is the actual parking demand vs. spaces available on the Medical Campus?
2. Data requested (BNMC) – mode share information for campus employees
3. Business/church survey development – BNMC/C&S will consider separate survey to document needs and concerns of these establishments in the study area

4. Technical Memorandum #1 – Existing & Future Parking Supply & Demand is expected to be complete in October. The next steering committee meeting will be to present that document, receive committee feedback, and begin discussing potential alternatives.

Next meeting:

October 2015 (exact date TBD)

Fruit Belt Neighborhood Parking Study

Steering Committee Meeting Notes 11/5/15

Attendees:

Orlando Boykin (Fruit Belt Resident)
Sam Magavern (Partnership for the Public Good)
Gary Witulski (Buffalo Urban Renewal Agency)
Robert Bragg (Kaleida Health)
Bill Smith (BNMC)
Jamie Hamann-Burney (BNMC)
Ekua Mends-Aidoo (BNMC)
Pat Kilculler (BNMC)
Jonathan McNeice (BNMC)
Kari Bonaro (BNMC)
Kim Fabend (C&S)
Joni Steigerwald (C&S)

1. Introduction to meeting by Bill Smith
2. Agenda & data collection presented by Joni Steigerwald (see attached presentation)
3. Secondary data collection from Wednesday, 11-4-15 presented by Bill Smith
 - a. Arrival observations mainly in sub area A, but new midday occupancy count throughout study area
 - b. Wednesday occupancy consistent with original Tuesday occupancy recorded
 - c. A number of vehicles already parked in sub area before 6am – peak occurred between 6:30-7am
 - d. Campus employees and construction workers observed
 - e. Peak arrival times
 - f. Approximate split between employees vs residents – 80% employees/20% residents
4. Future Scenario presented by Kim Fabend – data presented by Bill Smith from 11-4-15 observations will be reviewed to better project future scenario based on no changes in parking regulations on campus or in the neighborhood
5. Goals/Objectives – What is the issue? What is the desired result?
 - a. Comment: Orlando Boykin mentioned handicapped and elderly should have first choice. Mention of a system where those with handicapped stickers should be able to park in front of their own house (quality of life).
 - b. Comment: There is a good rapport between employees and residents
 - c. Comment: Gary Witulski asked if we can offer employee only parking in front of vacant lots
 - d. Comment: BNMC & consultant need to understand the neighborhood's goals for this program to best develop strategies for managing parking
 - i. May need to conduct more public outreach

- ii. May need to develop strategies to choose from
6. Striping Spaces
 - a. Comment: Won't work well on snowy days
 - b. Comment: Doesn't address the number of employees parking in the area
7. Residential Parking Permit Program – most restrictive, eliminates employees, limits residents
 - a. Comment: Time limits can be incorporated
 - b. Different time/side of the street restrictions can be considered as a stand-alone strategy
 - i. Comment: Residents will not like having to move their vehicles
8. Time Restrictions/Exempt
9. Residential and Employee Parking Permit Program – shares on-street parking

Action Items

- Gary Witulski & consultant team will review possibility of providing handicap spaces on-street
- BNMC & consultant team will consider how to obtain neighborhood thoughts on goals/objectives
- Consultant team will review recently acquired data collected by BNMC to inform development of future scenario

Fruit Belt Neighborhood Parking Study

Steering Committee Meeting Notes 3/14/16

Attendees:

Kevin Wild (Kaleida Health)
Orlando Boykin (Fruit Belt resident)
Kari Bonavo (BNMC)
Joni Steigerwald (C&S)
Kim Fabend (C&S)
Jamie Hamann-Burney (BNMC)
Ekua Mends-Aidoo (BNMC)
Sam Magavern (Partnership for the Public Good)
Kevin Helfer (City of Buffalo)
Bill Smith (BNMC)

1. Introduction to meeting by Bill Smith
2. Technical memo #1 Review
 - a. Review of Study Area
 - b. Parking Supply and Demand Overview
 - c. Future Scenario (2020) Introduction
 - i. Utilization up to Orange Street
 - ii. Quarter mile buffers
3. General Considerations
 - a. Increased parking enforcement
 - b. Continue to promote transportation demand management (TDM)
 - c. Discourage BNMC shuttles to the Fruit Belt
4. Strategies & Best Practices
 - a. Two strategies rose to the top to be considered to proceed into the phase of developing implementation plans based on input received over the past 10 months from community stakeholders and residents.
 - i. One strategy identified in the Study includes the development of a combined residential and employee permit parking program within the neighborhood
 1. Since this strategy requires the passing of specific state legislation, a second strategy was identified for further development in case the required state legislation for the permit strategy is not passed
 - ii. Second strategy would include the implementation of alternative side street parking, which could be implemented by the City without the need for NYS legislation and would significantly deter employees from parking in the Fruit Belt neighborhood.
 - b. Residential & Employee Parking Permit Program
 - i. Would apply to residential streets – streets with commercial uses will remain available for short-term parking but details need to be developed
 - ii. Parking would be allowed on both sides of the street with one side allocated to employee permit holders and the other side allocated to residential permit holders. A time limit may be established to indicate when employees may be parked on the street
 - iii. Which side is allocated to which type of permit may alternate daily

- iv. Permits may be designated for particular streets based on residence and cost of employee permit
 - v. At this time, it is anticipated that residential permits would be free of charge to residents and the price for employee permits would be based on which street they are assigned to (roadways closer to campus would cost more than those farther east)
 - vi. A permit would be given for each vehicle that is registered to a residence on each street in the program area. Visitor passes may be available as well, but details need to be developed in terms of the number allowed per residence or potential costs.
- c. Alternate Side Street Parking
- i. Would apply to residential streets – streets with commercial uses will remain available for short-term parking but details need to be developed
 - ii. Parking would be allowed on one side of the street at a time
 - iii. A switchover time would be designated either mid-morning or early afternoon where vehicles on one side of the street would need to be moved over to the other side of the street daily. This would reduce BNMC daytime employee parking on campus since they would be required to leave their shift/work day to move their vehicle.
 - iv. There would be no other restrictions for parking within the area – anyone could park for as long as they want, as long as they are on the correct side of the street on the correct time/day
5. Next Steps
- a. Receive committee comments through March 25th
 - b. Develop implementation, operations, and financial plan for preferred alternative
 - c. Submit and review draft final report with steering committee (late May 2016)

NYSERDA Kick-off Presentation

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Fruit Belt Neighborhood On-Street Parking Meeting



January 20, 2015

E-15

Fruit Belt Neighborhood (Census Tract 31.00)



The Issues

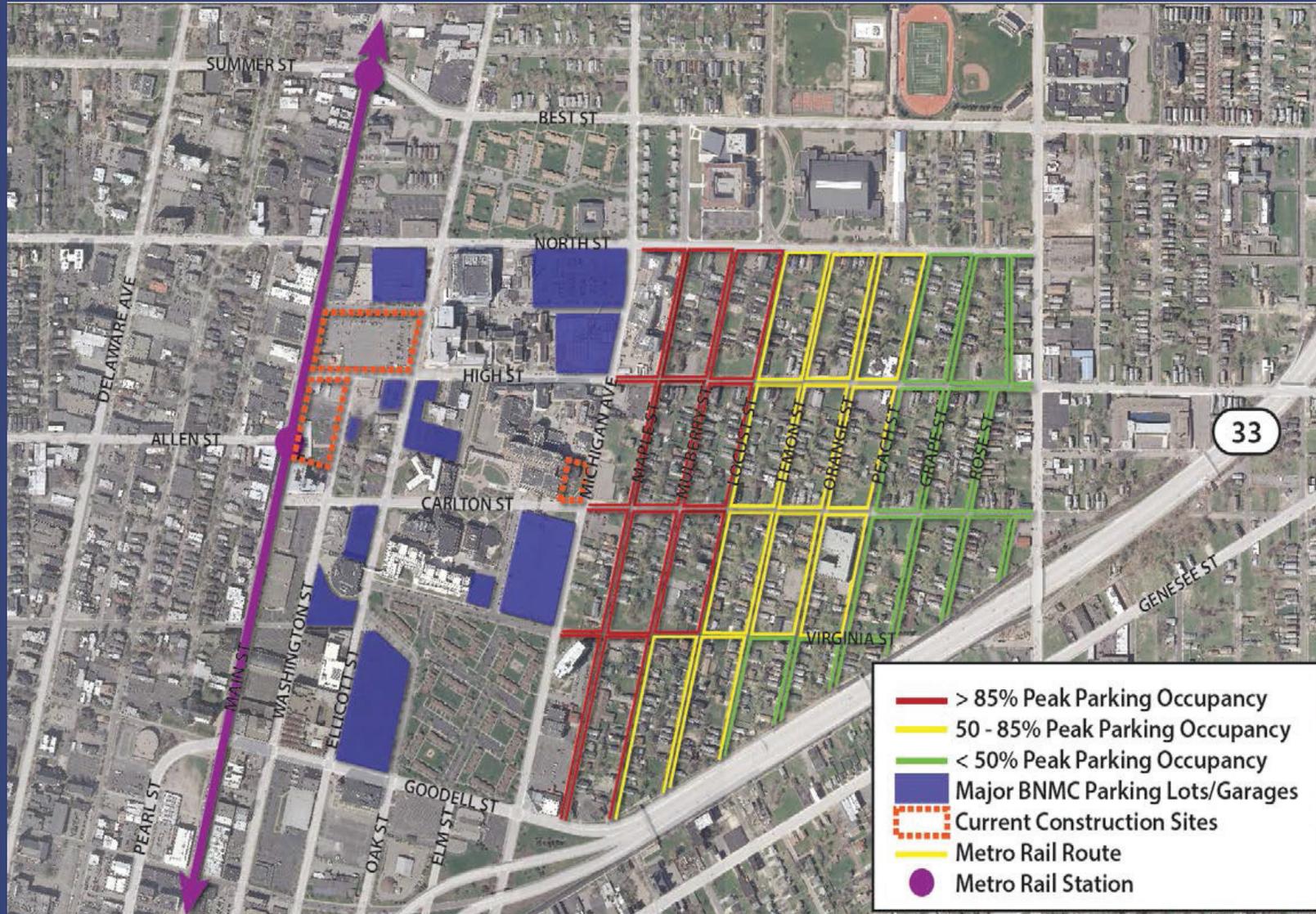
An estimated 600-700 employees from the Medical Campus currently parking on-street in the Fruit Belt neighborhood.

An additional 5,000 +/- students and employees coming to the Medical Campus within the next couple years.

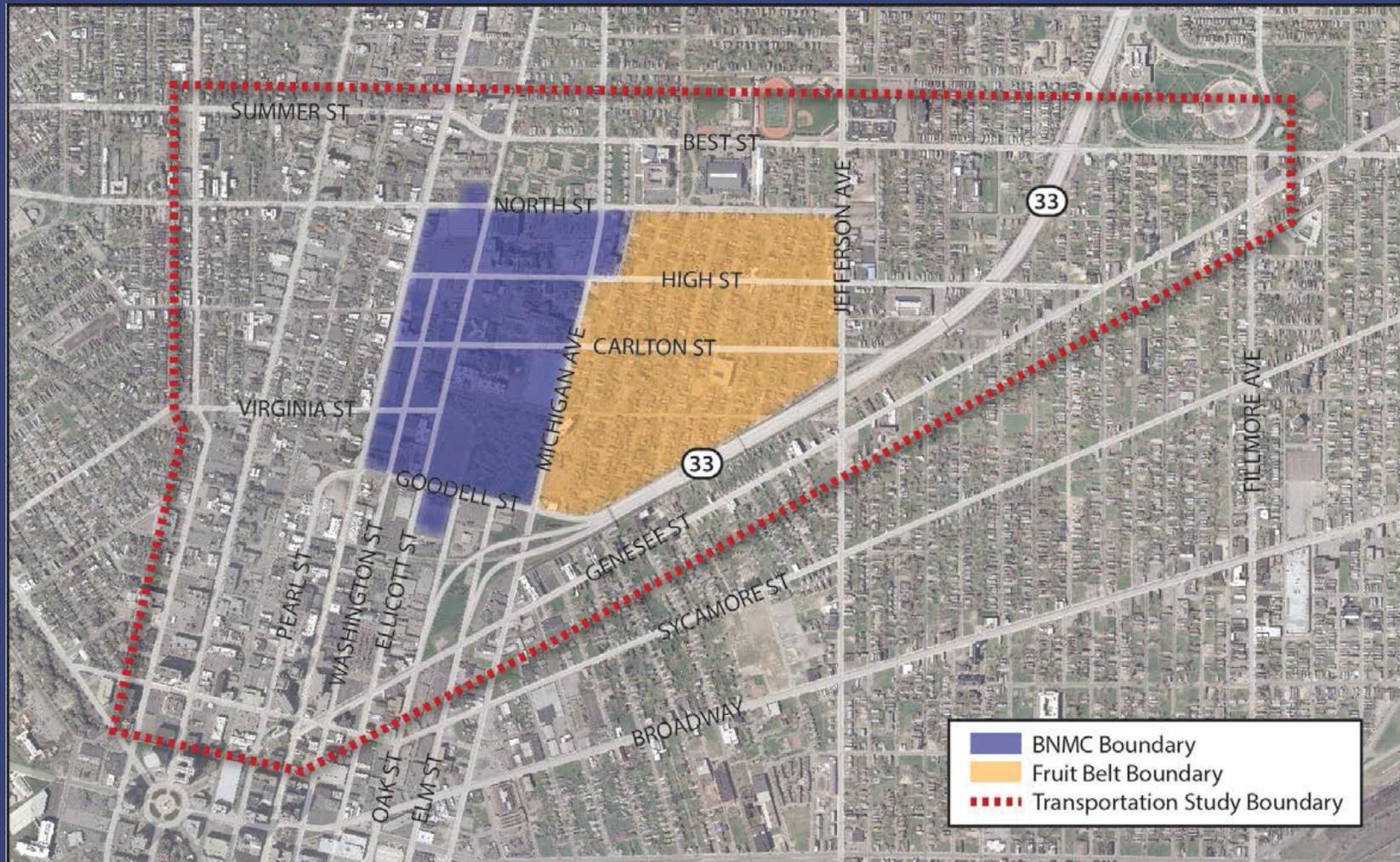
On-street parking in Fruit Belt is both free and unrestricted, versus parking on the Medical Campus which is both carefully managed and at market rate.

Alternative modes (transit, bicycle, walking, etc...) perceived by many as an unviable option despite BNMC's efforts to promote and enhance.

Existing Conditions



BNMC & CBD North Traffic Study



Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

NYSERDA/NYS DOT PON 2881:

Institutionalizing Integrated Solutions Supporting Accessible Multimodal Transportation Networks

Focus Area 2

Active Parking Management (APM) Strategy

Category 2

Policy Research and Feasibility Studies

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

Community Letters of Support:

NYS Senator Timothy M. Kennedy (63rd District)
Assemblywoman Crystal D. Peoples-Stokes (141st District)
Mayor Byron W. Brown (City of Buffalo)
Common Council President Darius G. Pridgen (Ellicott District)
Fruit Belt Coalition (Benjamin Cashaw)
Orchard Community Initiative (Zaid Islam)
Greater Buffalo Regional Transportation Council (GBNRTC)
Kaleida Health
GO Bike Buffalo

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

PROPOSAL COST SHARING TABLE

Funding Source	Proposed Funding by Task (Cash and In-Kind)						Project Total	
	Task 1 (\$)	Task 2 (\$)	Task 3 (\$)	Task 4 (\$)	Task 5 (\$)	Task 6 (\$)	Cash (\$)	In-Kind (\$)
NY State	\$ 18,607	\$ 14,251	\$ 13,883	\$ 12,435	\$ 11,939	\$ 12,939	\$ 84,051	
Proposer	\$ 6,063	\$ 6,063	\$ 6,063	\$ 6,063	\$ 6,063	\$ 6,063		\$ 36,375
Task Total	\$ 24,669	\$ 20,313	\$ 19,945	\$ 18,497	\$ 18,001	\$ 19,001	\$ 84,051	\$ 36,375

Total = \$120,426.00

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

Goals and Objectives

Explore the potential for a model Parking Benefits District in the Fruit Belt Neighborhood.

- Identify best practices of residential parking programs from across the country.
- Create a program replicable in other cities/districts across New York State experiencing similar neighborhood parking issues.

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

Goals and Objectives

Provide a set of customizable active parking management (APM) strategies.

- Incorporate dynamic pricing strategies to help manage demand and distribution.
- Include recommendations regarding innovative technology solutions that will support an efficient system and alleviate congestion.

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

Goals and Objectives

Effectively manage the on-street parking supply and demand in the neighborhood.

- Determine the current and future on-street parking supply and demand for Fruit Belt residents and non-residents.
- Develop an operations/management plan that will help to ensure the availability of on-street parking for current and future Fruit Belt residents and determine the appropriate amount to be made available for non-residents.

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

Goals and Objectives

Reduce the number of single occupant vehicles driving to and from the area.

- Determine the appropriate market rate for non-resident parking fees in the Fruit Belt.
- Create a disincentive for driving alone to the BNMC by limiting free parking options for non-residents in the adjacent Fruit Belt.

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

Goals and Objectives

Improve the access, mobility and quality of life of Fruit Belt residents.

- Develop a financial support mechanism for the implementation and maintenance of complete streets and public realm infrastructure.

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

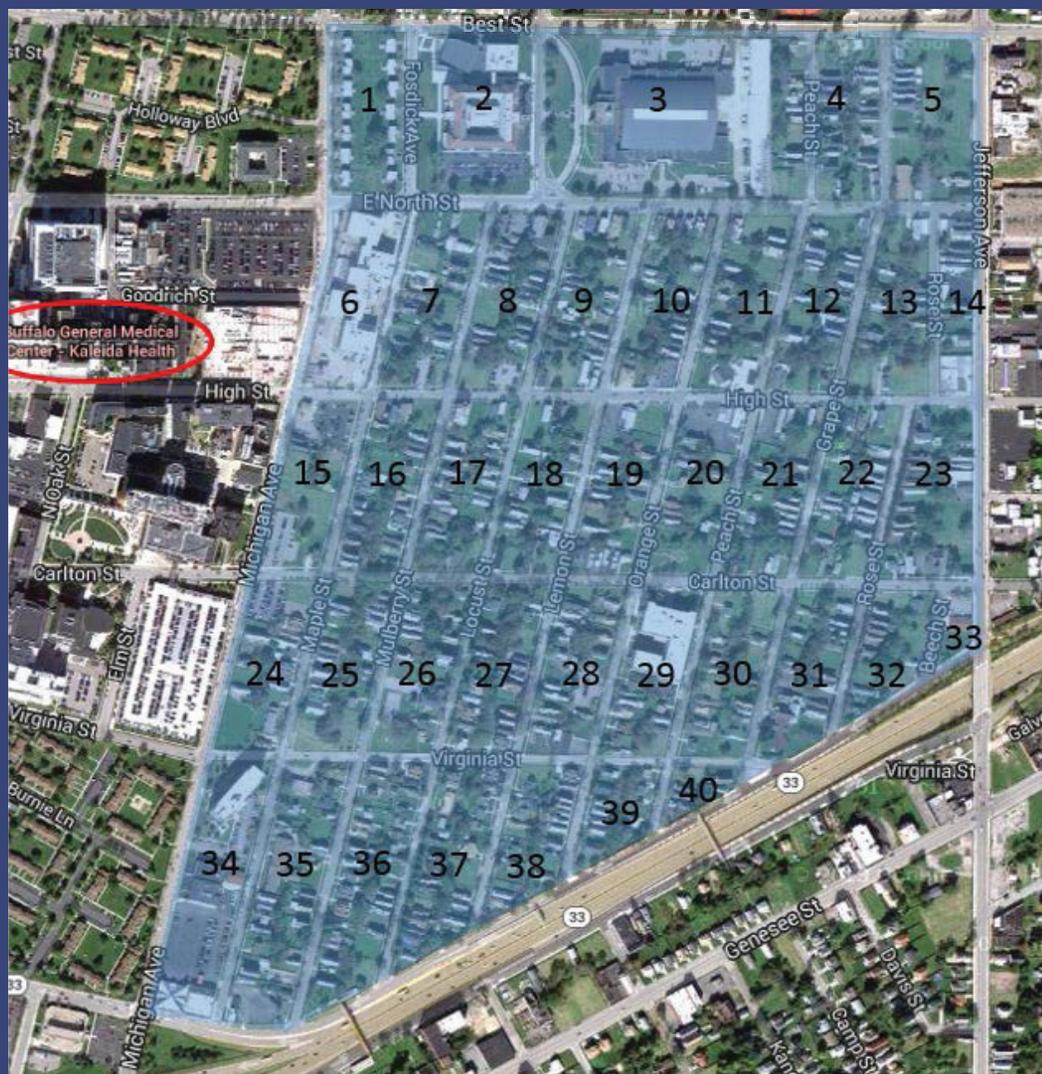
Goals and Objectives

Identify sound financial management strategies to ensure the appropriate use of revenues.

- Propose a sound administrative process and structure based on best practices research, involving City and community representation.

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

Study Area (40 blocks)



E-29

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

Study Tasks

- In-Depth Data Collection Process
- Parking Supply and Demand Analyses
- Identify & Evaluate Strategy Alternatives
- Document Best Practices
- Recommendations & Implementation Plan

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

Steering Committee

BNMC will develop a project steering committee, consisting of key local agencies, residents, and business representatives to provide information, insight, and data, as well as to review and comment on project findings.

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

C&S Engineering, Inc.

The BNMC will enter into an agreement with C&S Engineers, Inc. to guide the technical analyses associated with the study including data collection organization, parking supply and demand analyses, best practices research, and the development of potential strategies and recommendations.

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Steering Committee Presentations

[blank]

Fruit Belt Neighborhood Parking Study



Steering Committee Meeting #1

July 13, 2015

E-37

Fruit Belt Neighborhood Parking Study

Steering Committee Meeting #1

AGENDA

1. Introductions
2. Overview of Study Goals and Objectives
3. Review Study Tasks and Schedule
4. Data Collection Efforts to Date
5. Review Draft Resident Survey
6. Open Discussion

July 13, 2015

E-38

Fruit Belt Neighborhood Study Area (Census Tract 31.00)



The Issues

An estimated 500 +/- employees from the Medical Campus currently parking on-street in the Fruit Belt neighborhood.

An additional 5,000 +/- students and employees coming to the Medical Campus within the next couple years.

On-street parking in Fruit Belt is both free and unrestricted, versus parking on the Medical Campus which is both carefully managed and at market rate.

Alternative modes (transit, bicycle, walking, etc...) perceived by many as an unviable option despite BNMC's efforts to promote and enhance.

Limited availability of on-street parking for Fruit Belt residents.

Negative impacts on quality of life (safety, congestion, air quality, etc...).

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

NYSERDA/NYS DOT PON 2881:

Institutionalizing Integrated Solutions Supporting Accessible Multimodal Transportation Networks

Focus Area 2

Active Parking Management (APM) Strategy

Category 2

Policy Research and Feasibility Studies

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

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Task Total	\$ 24,669	\$ 20,313	\$ 19,945	\$ 18,497	\$ 18,001	\$ 19,001	\$ 84,051	\$ 36,375

Total = \$120,426.00

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

Goals

Explore the potential for a model Parking Benefits District in the Fruit Belt Neighborhood.

Provide a set of customizable Active Parking Management (APM) strategies.

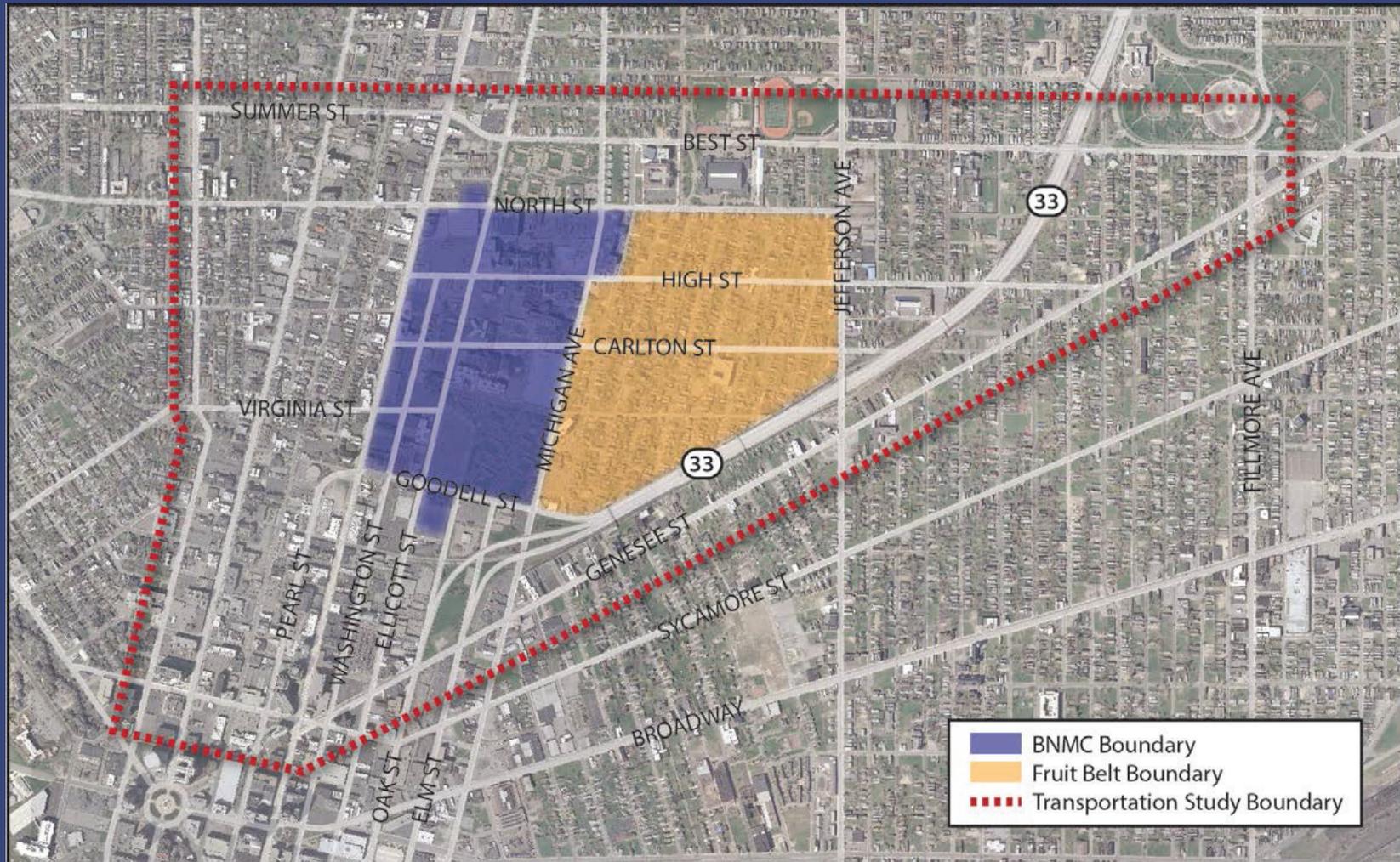
Effectively manage the on-street parking supply and demand in the neighborhood.

Reduce the number of single occupant vehicles driving to and from the area.

Identify model financial management strategies from existing best practices.

Improve the access, mobility and quality of life for Fruit Belt residents.

BNMC & CBD North Traffic Study



Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

1. Project Management

Develop a Project Steering Committee consisting of key local agencies and employee, resident, and business representatives, to provide information, insight, and data, as well as to review and comment on project findings.

Steering Committee to meet **every 3 months**.

Provide regular Progress Reports to NYSERDA and NYSDOT documenting work progress during the reporting period, and any difficulties encountered, planned work in the next reporting period, and status of project schedule.

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

2. In-Depth Data Collection Process

- Review planning documents, studies, land use information, policies, legislation, etc...
- Identify existing on-street parking supply.
- Document occupancy and turnover throughout the study area.
- Determine the average number of off-street parking spaces available per residence and number of registered vehicles per residence.
- Identify and inventory off-street parking facilities in the study area.

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

3. Parking Supply & Demand Analysis

- Document the existing parking supply and demand based on Task 2.0 and develop the future supply and demand scenario.
- Consider any anticipated changes to the supply and demand due to known development projects through 2020.

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

4. Identify & Evaluate Strategy Alternatives

Develop a list of potential strategies to help achieve the goals and objectives of the project. Strategies may include, but not be limited to:

- Development of a residential permit program
- Establish a parking benefit district
- Establish on-street parking metering and payment structure
- Consider electronic and/or mobile device payment options
- Establish time limits for on-street parking

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5. Document Best Practices

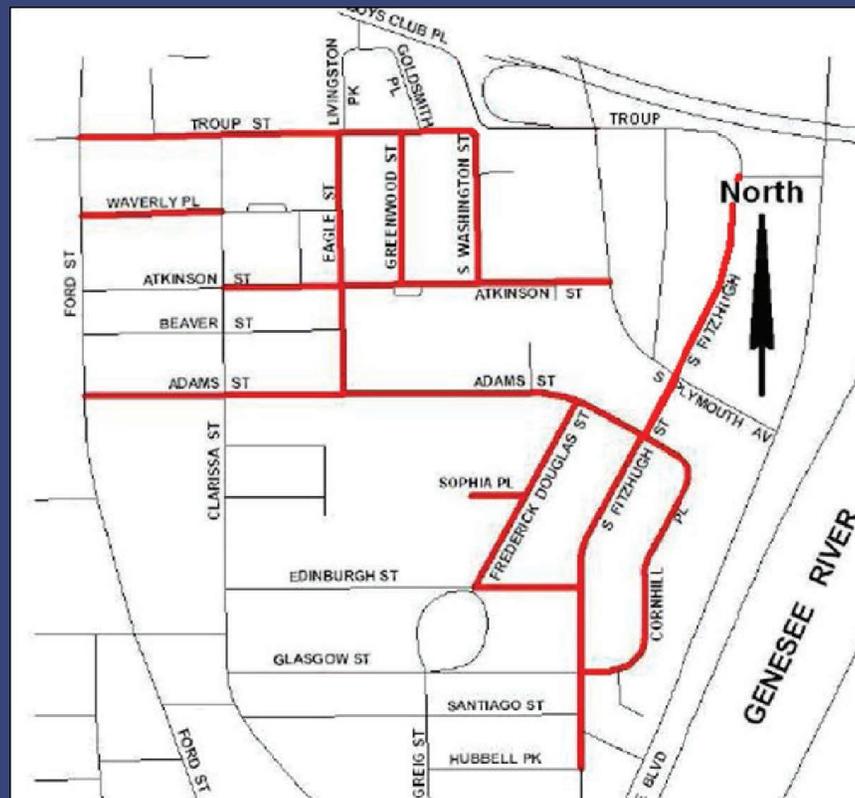
Document various best practices for implementation of the identified strategies in order to help inform the development of recommendations.

Preliminary examples include.....

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

5. Document Best Practices

Corn Hill, Rochester NY – Residential and Employee Permit Program

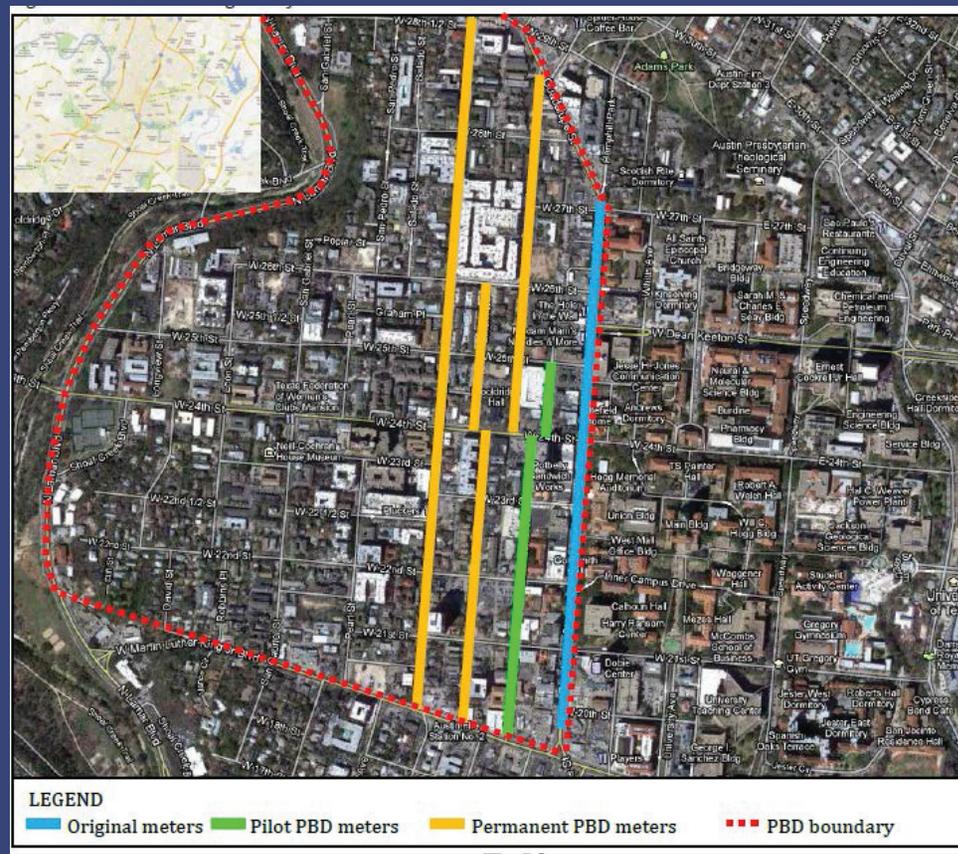


E-50

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

5. Document Best Practices

University of Texas at Austin (West Campus) – Parking Benefit District



Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

6. Recommendations & Implementation Plan

The final deliverable will be a report broken into three primary plans:

1. **Implementation, Operations & Management Plan**
2. **Pricing Plan**
3. **Financial Plan**

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

6. Recommendations & Implementation Plan

Implementation, Operations & Management Plan will include various recommendations regarding program elements ,such as:

- Time limits
- Number of resident and visitor permits issued
- Fees associated with permits
- Whether or not non-residents will be able to buy permits
- Proposed signage
- Enforcement
- Public education programs

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

6. Recommendations & Implementation Plan

Pricing Plan will answer various questions, such as:

If non-resident will be able to park in the neighborhood or buy permits, what fee will they be charged?

How will permit holders be able to pay for their permits?

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

6. Recommendations & Implementation Plan

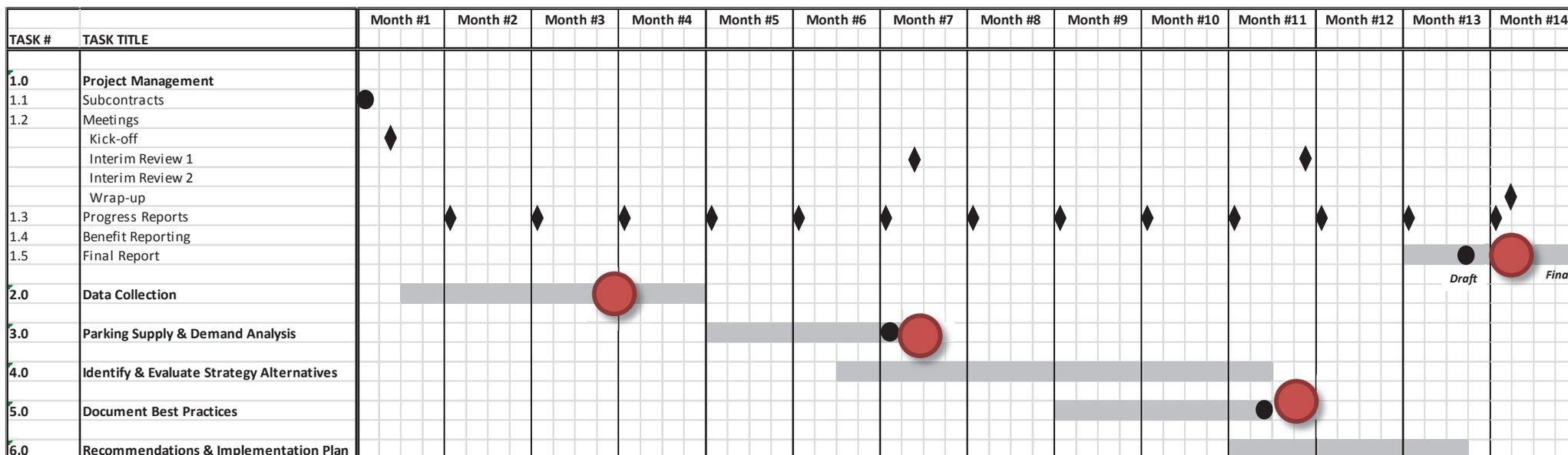
Financial Plan will estimate the costs to implement, operate and maintain any recommended strategies.

The **Financial Plan** will also identify the potential administrative process for:

- Permit fee collection
- Violation fee collection
- Appropriation of funds

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

Project Schedule



Steering Committee Meetings

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

Residential Survey

What are we missing?

Best methods for distribution?
(Neighborhood Orgs? Events? Locations?)

Exploring the Creation of a Residential Parking Benefits District in Buffalo, NY

Open Discussion

Questions, comments, concerns?

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Residential Parking Benefits District Study Fruit Belt Neighborhood

Steering Committee Meeting November 5, 2015

Agenda

- Existing Parking Supply & Demand
- Residential Survey
- Future Scenarios
- Goals and Objectives
- Strategies
- Next Steps

Study Area

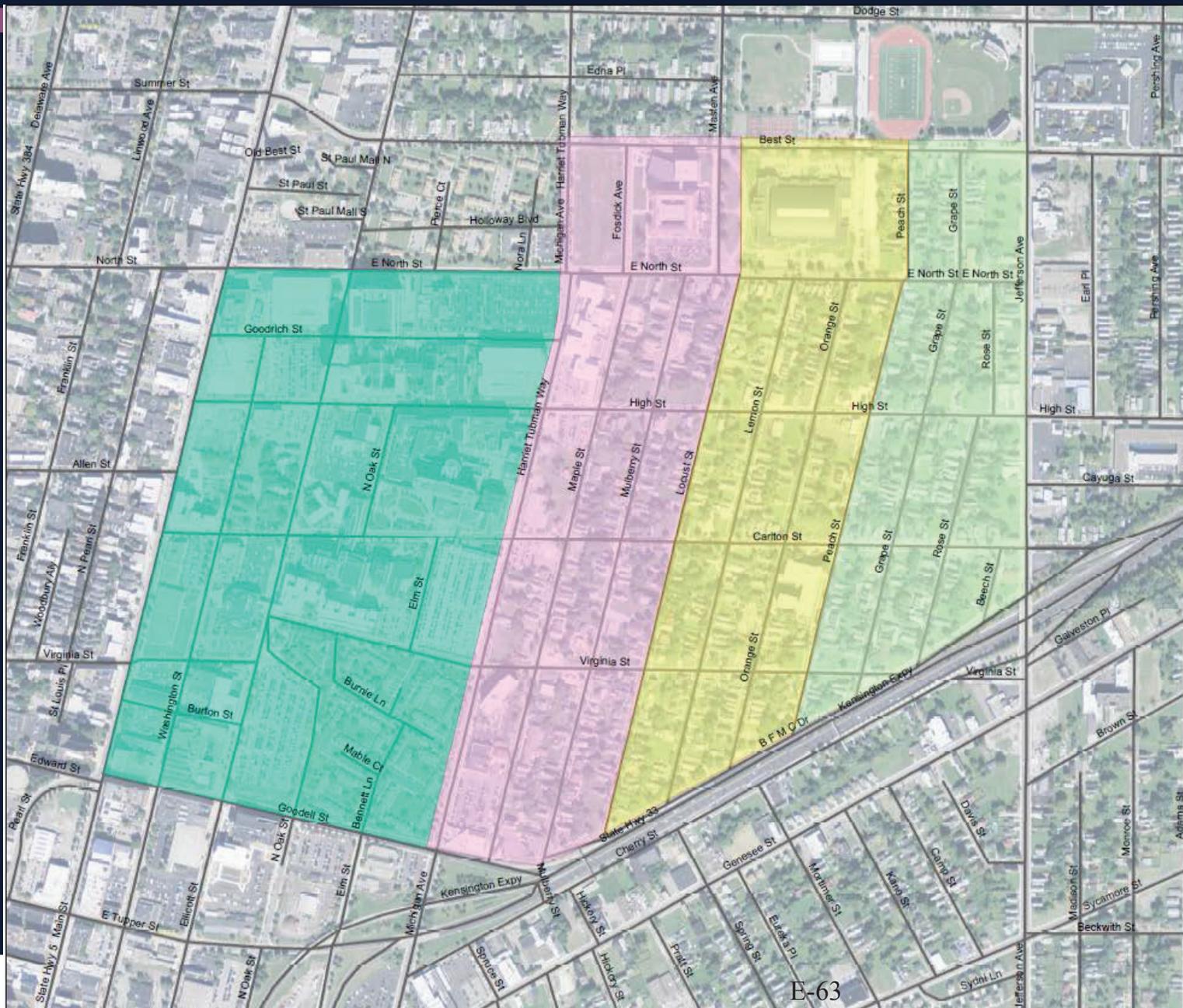


Figure 1-2.
Study Area and Streets
 Residential Parking
 Benefits District Study

-  Buffalo Niagara Medical Campus
-  Sub-Area A
-  Sub-Area B
-  Sub-Area C
-  Streets



0 150 300 600 900 1,200 1,500
 Feet

1" = 500'
 When printed at 11"x17"



Parking Supply & Demand Overview

- Parking Supply

- ✓ Documented existing parking supply via field data & GIS tools
- ✓ Restrictions for north-south streets based on alternating sides of streets and focused on workday – no restrictions before 9 am and after 4 pm
- ✓ Available supply varies – total of 1,900 on-street but with restrictions, approximately 1,100 available
- ✓ Effective Supply – accounts for inefficient use of parking spaces such as snow storage, curb length, etc. (85% of supply used for this study)

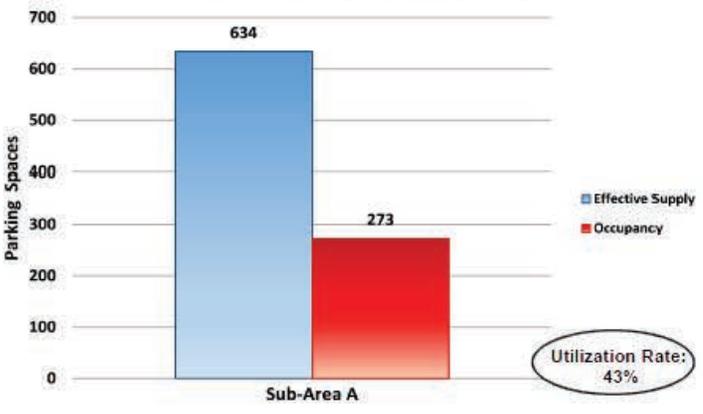
Parking Supply & Demand Overview

- Parking Occupancy

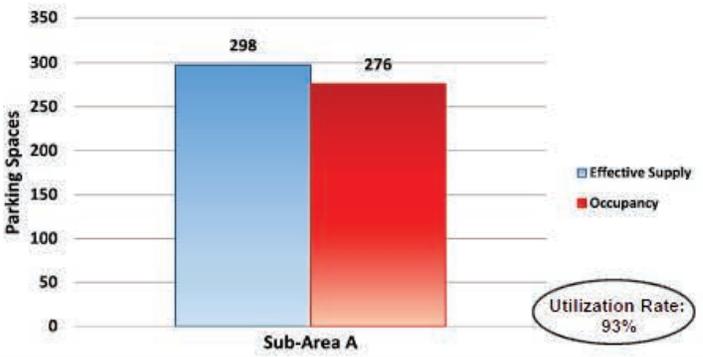
- ✓ Study focuses on midweek, midday occupancy (Tuesday)
- ✓ Utilization = Occupancy/Effective Supply
- ✓ Sub Areas
 - ✓ Sub Area A – Michigan Avenue to west side of Locust Street
 - ✓ Sub Area B – East side of Locust Street to west side of Peach Street
 - ✓ Sub Area C – East side of Peach Street to west side of Jefferson Street

Sub Area A

On-Street Parking AM Occupancy



On-Street Parking Midday Occupancy



On-Street Parking PM Occupancy

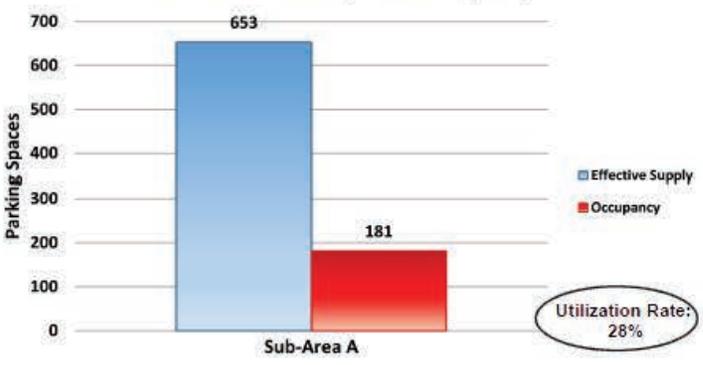
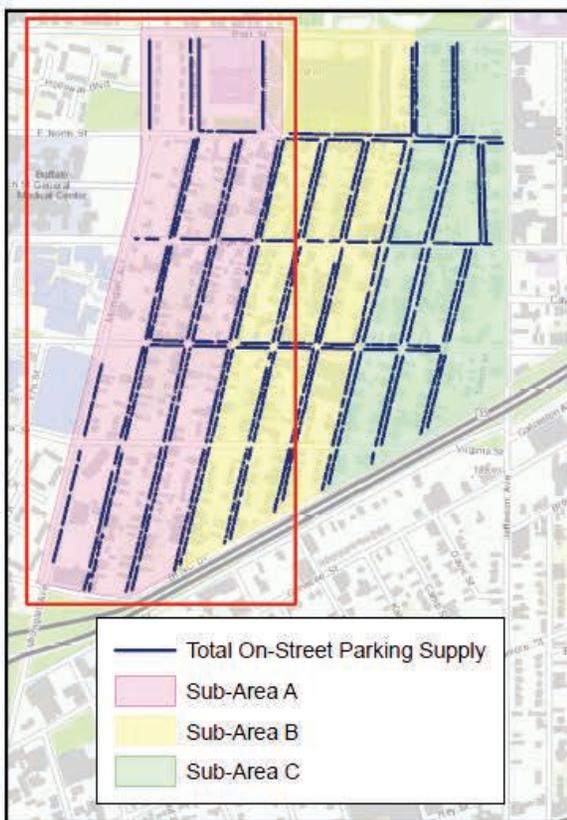
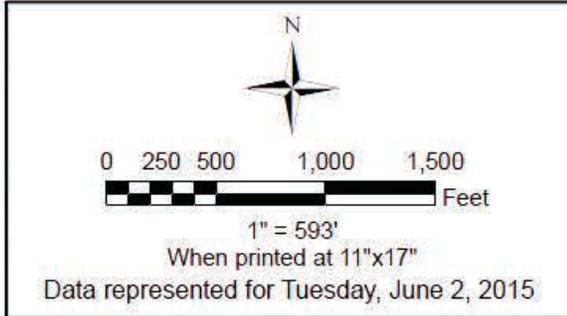
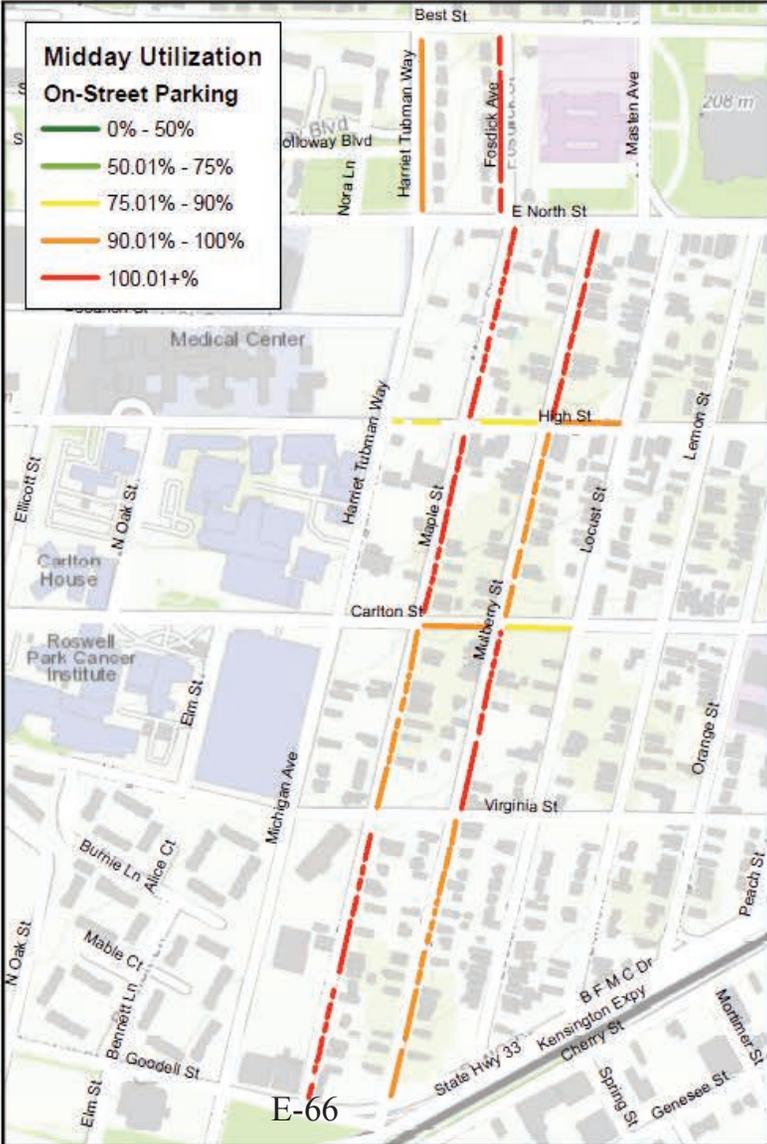


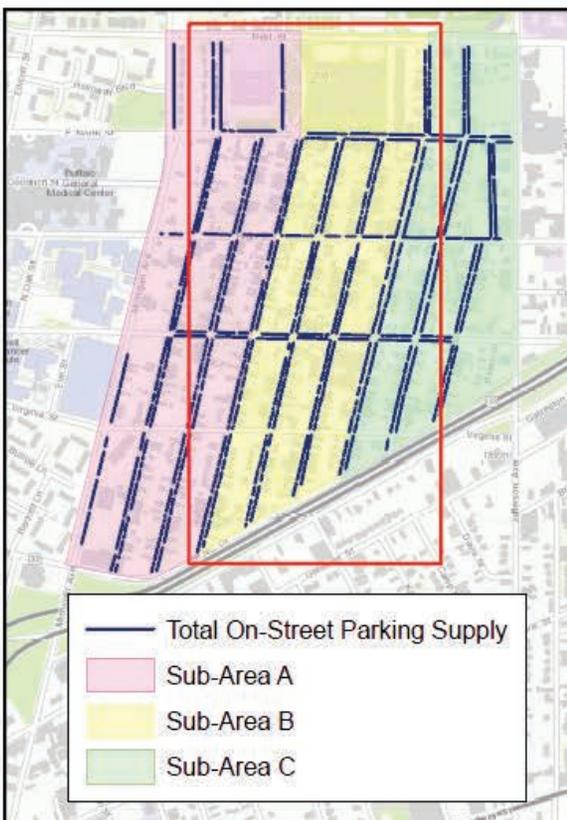
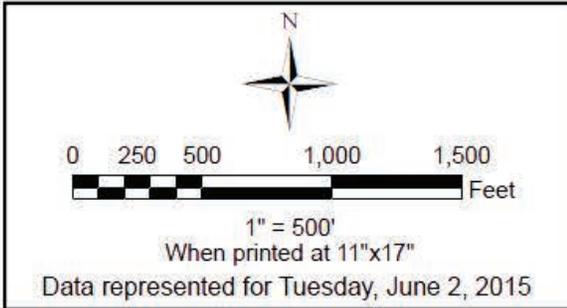
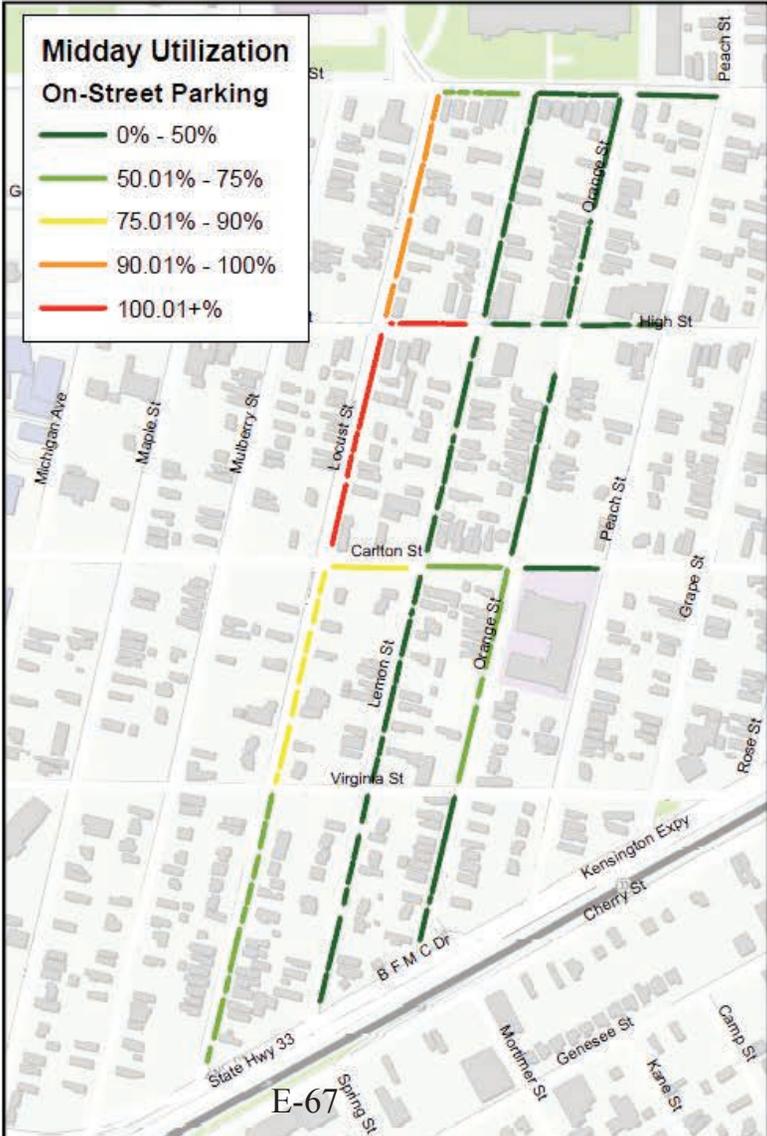
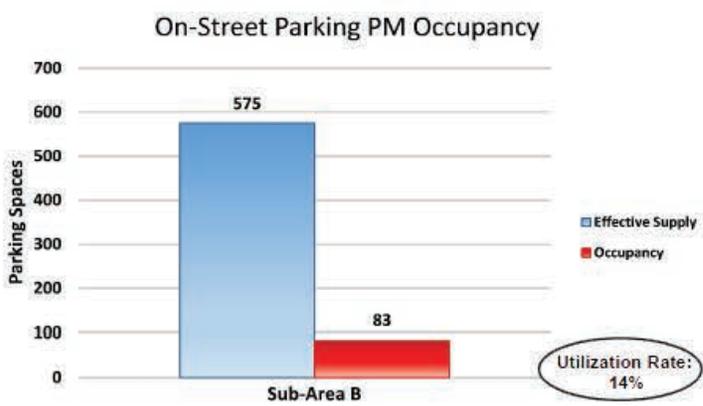
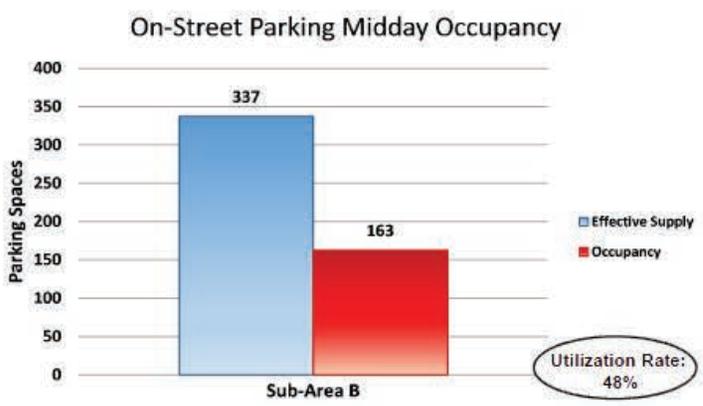
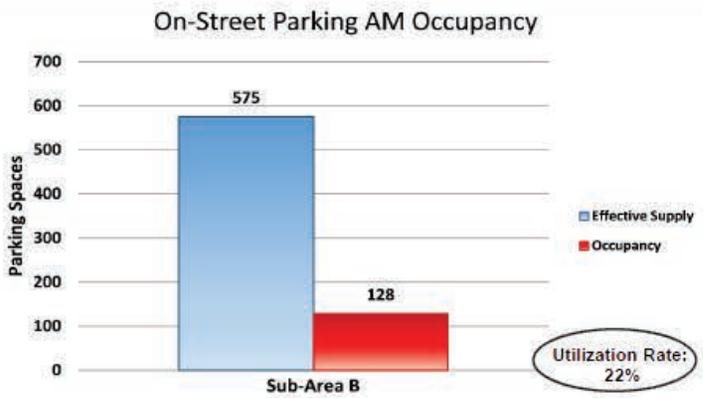
Figure 2-4.
On-Street Parking Effective Supply vs. Occupancy
Sub-Area A
Residential Parking Benefits District Study



Sub Area B



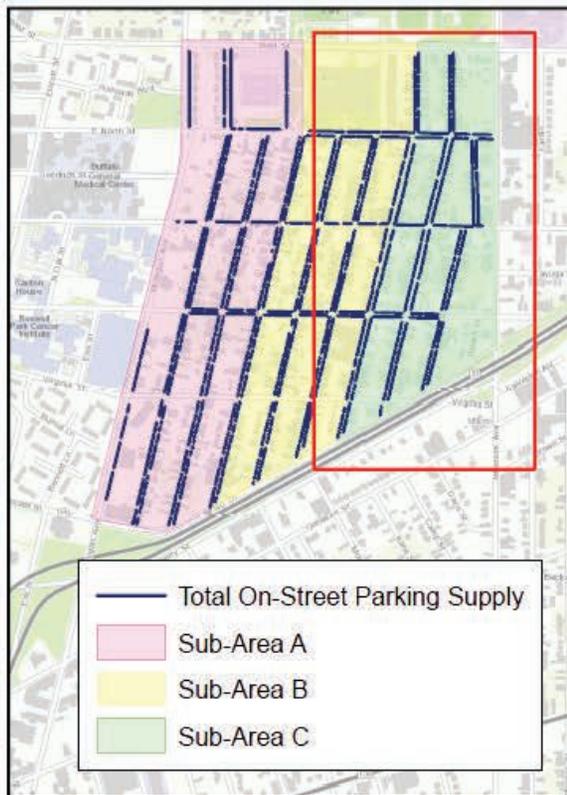
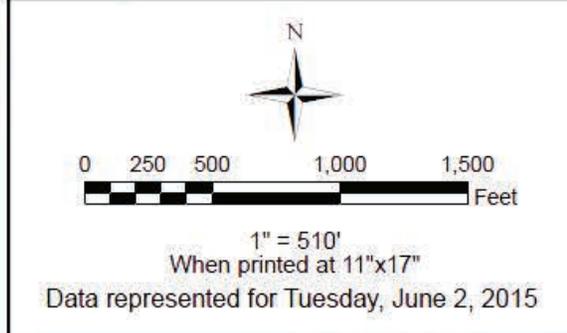
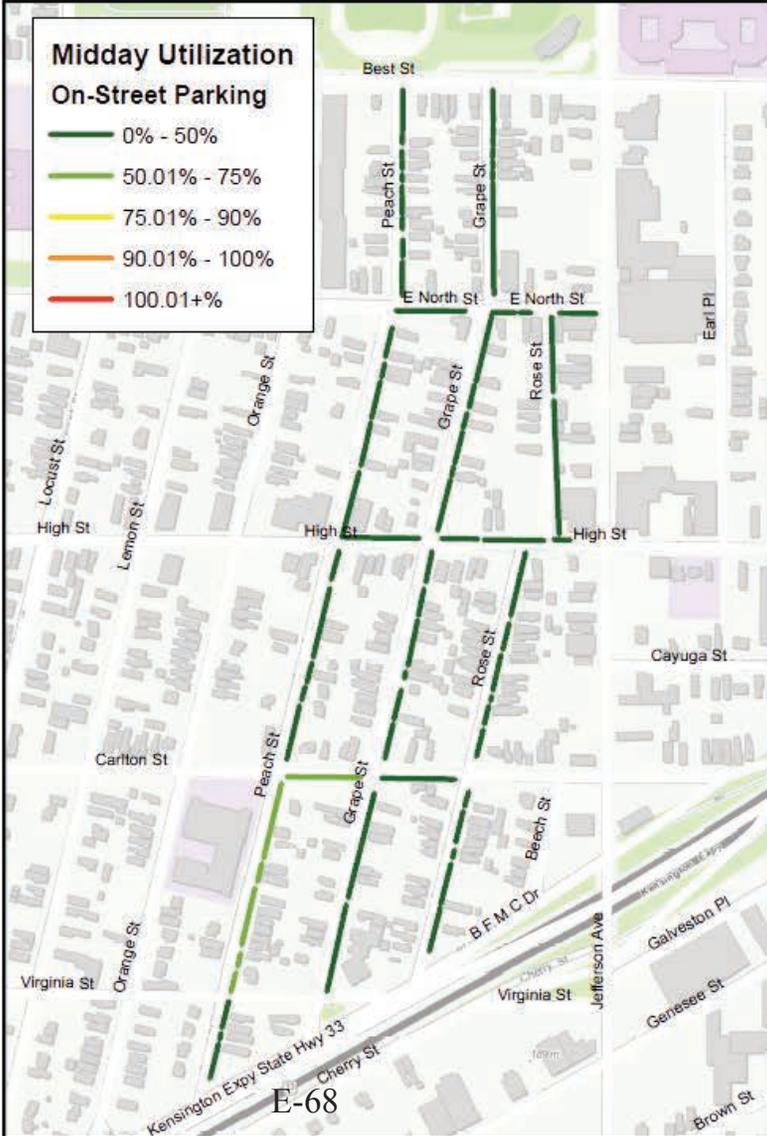
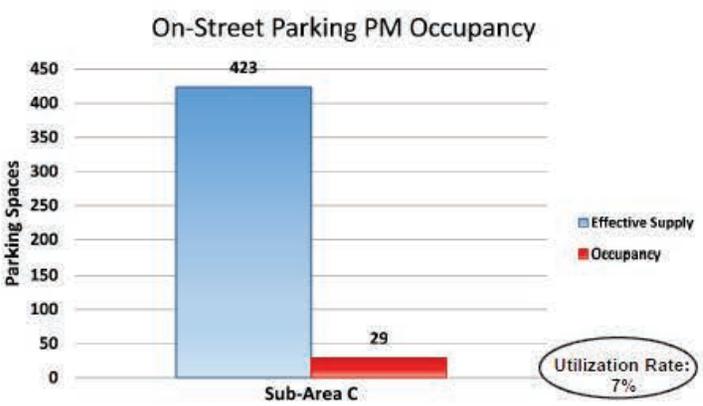
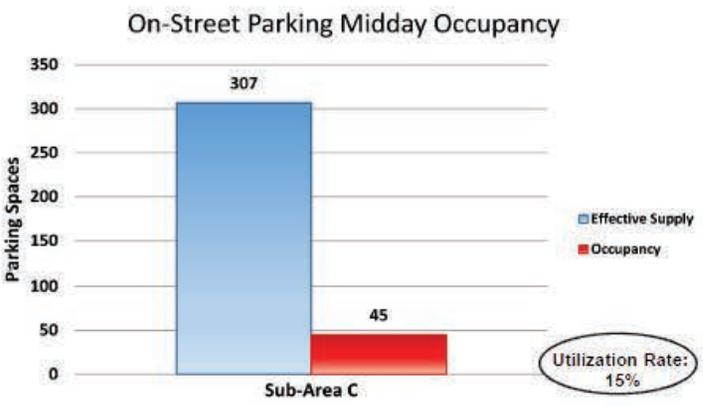
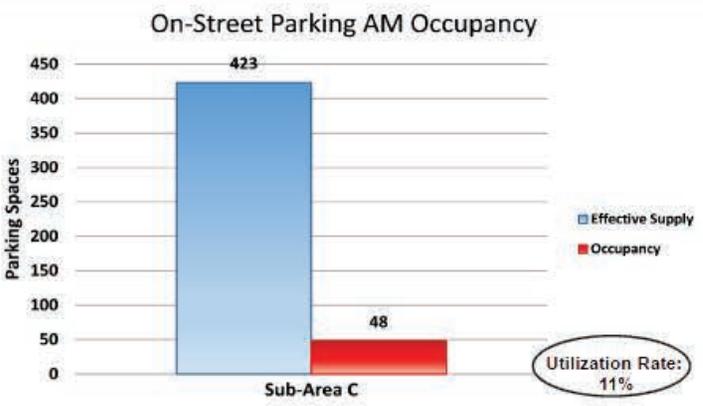
Figure 2-5.
On-Street Parking Effective Supply vs. Occupancy
Sub-Area B
Residential Parking Benefits District Study



Sub Area C

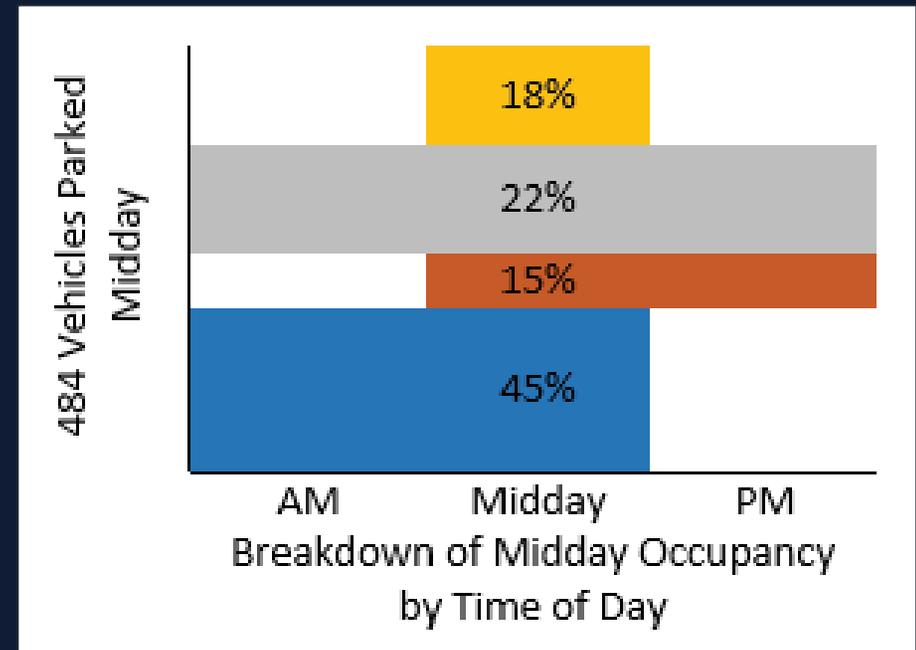


Figure 2-6.
On-Street Parking Effective Supply vs. Occupancy
 Sub-Area C
 Residential Parking Benefits District Study



Parking Supply & Demand Overview

- Parking Occupancy
 - ✓ License plate data
 - ✓ Vehicle parking duration
 - ✓ AM & Midday – 218 vehicles
 - ✓ Midday & PM – 72 vehicles
 - ✓ AM, Midday & PM – 106 vehicles



Residential Survey

- Distribution & Responses
 - ✓ Hand delivered/internet opportunities
 - ✓ Community meetings and events
 - ✓ 78 respondents – 76 are residents living on Maple Street, Mulberry Street & Locust St. (Sub Area A)



Sorry we missed you! We need your input:

Please complete the confidential survey by Friday, August 31st, in one of three ways:

- Stop by the Moot Center on Thurs., August 27th from 5-7pm (refreshments provided)
- Visit [Surveymonkey.com/r/FruitBeltSurvey](https://www.surveymonkey.com/r/FruitBeltSurvey)
- Or call Ekua at 716-218-7806 to have a survey sent to you

Thank you in advance for your participation!

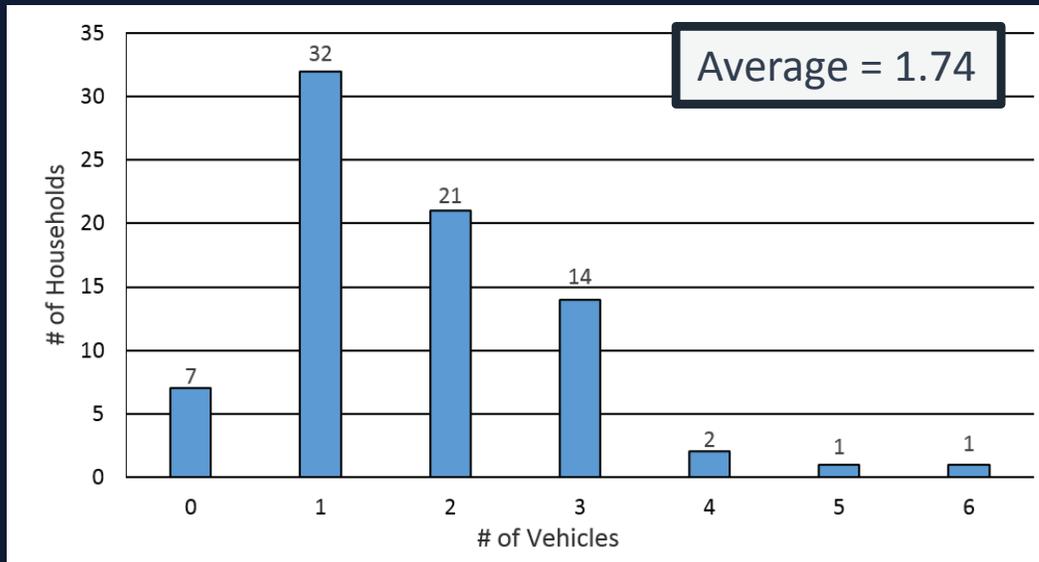
We will be working with neighborhood groups and community stakeholders to distribute the survey results in September.

If you have questions, feel free to contact:
Ekua Mends-Aidoo
emends-aidoo@bnmc.org
716-218-7806

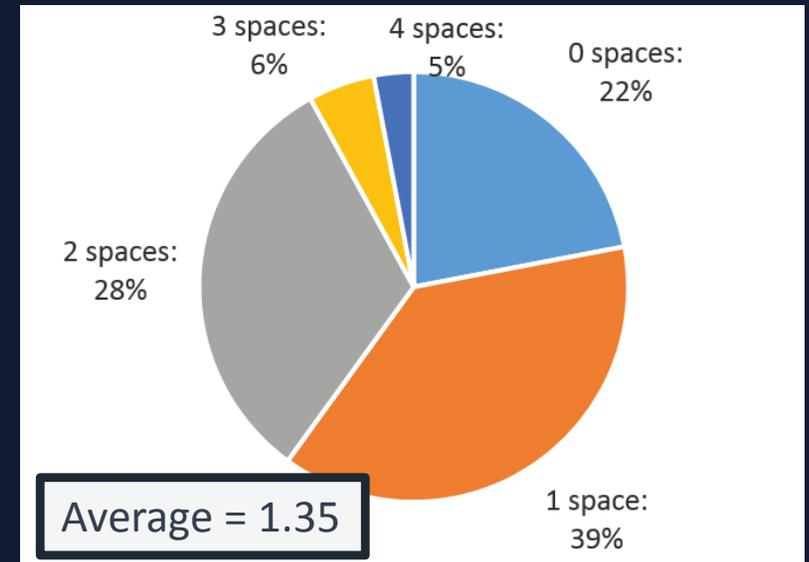


Residential Survey

Vehicles per Household



Off-Street Spaces per Household

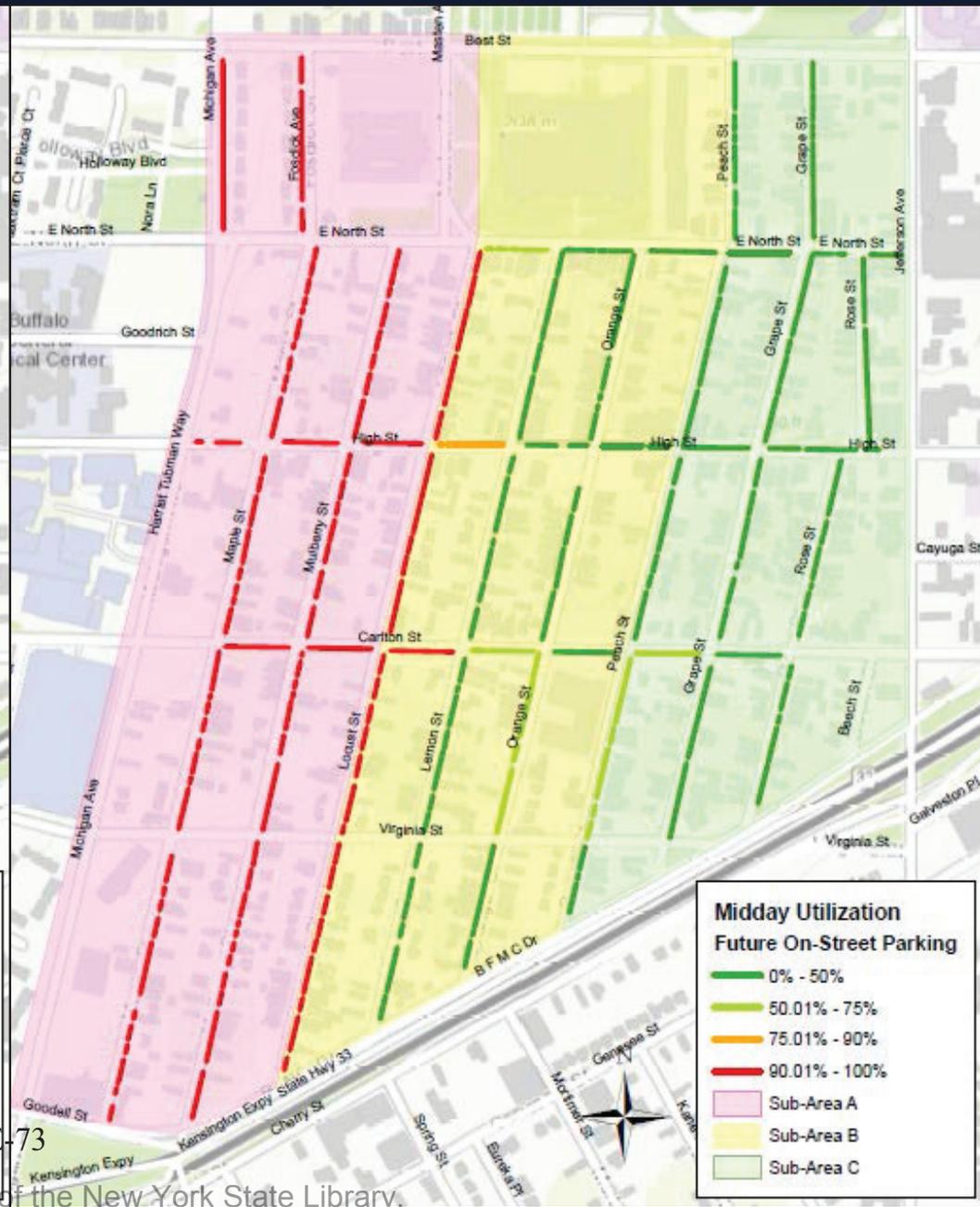
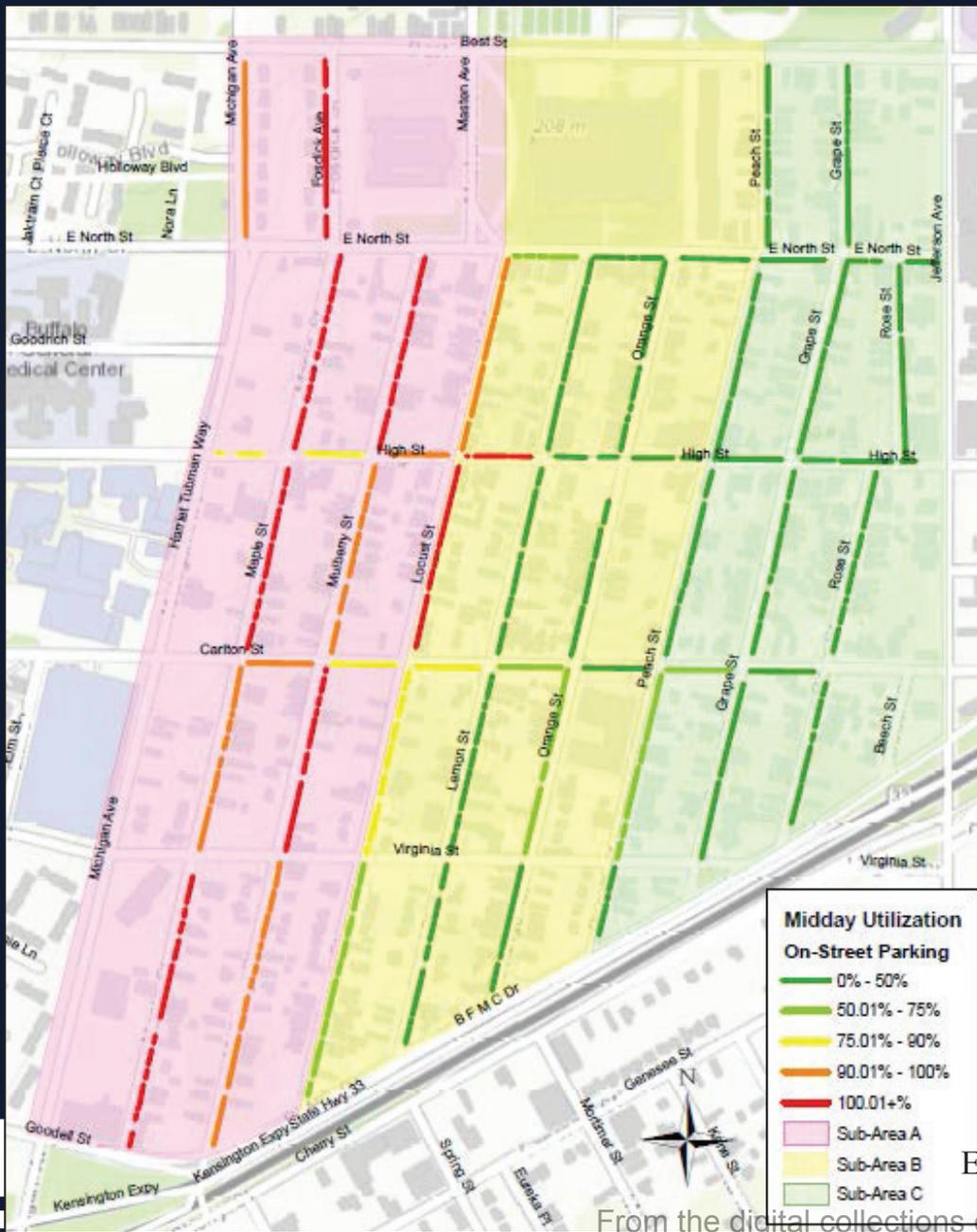


- While 60% of the respondents indicated they have sufficient off-street parking for their household needs, 96% of respondents indicate they rely on on-street parking for visitors.

Residential Survey

- Respondent Comments
 - ✓ Fear of ticketing
 - ✓ Parking far from home
 - ✓ Circulation issues
 - ✓ Vehicles blocking driveways
 - ✓ Access for emergency & home-based services (including school buses & garbage pick-up)

Future Scenario



**Midday Utilization
On-Street Parking**

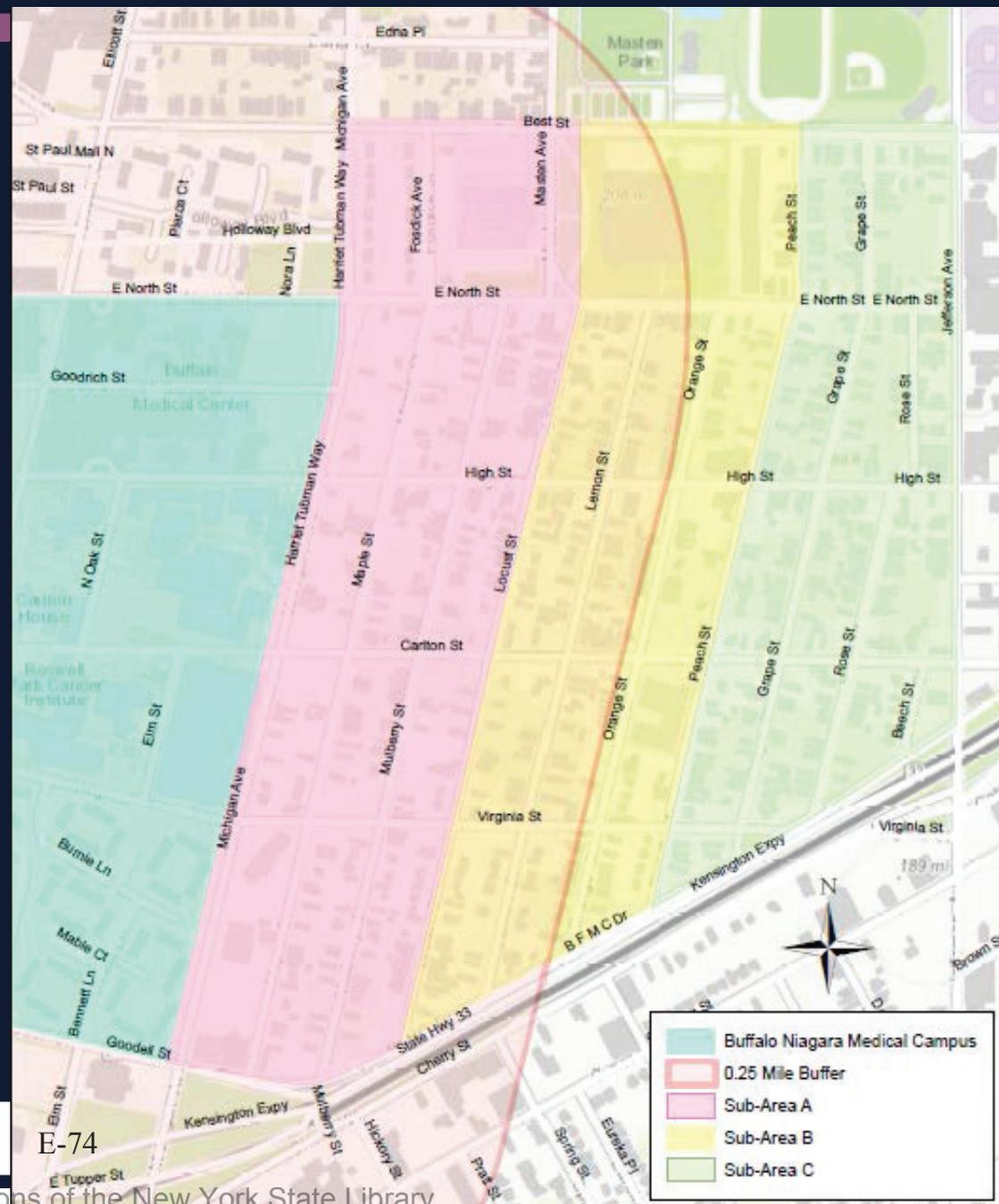
- 0% - 50%
- 50.01% - 75%
- 75.01% - 90%
- 90.01% - 100%
- 100.01%+
- Sub-Area A
- Sub-Area B
- Sub-Area C

**Midday Utilization
Future On-Street Parking**

- 0% - 50%
- 50.01% - 75%
- 75.01% - 90%
- 90.01% - 100%
- Sub-Area A
- Sub-Area B
- Sub-Area C

Future Scenario

- Most people are only willing to walk ¼ mile



What is the issue?

- High daytime on-street parking occupancy
- Availability for residents/visitors/services
- Safety concerns
- Traffic congestion/air quality

What is the desired end result?

- No employees on-street?
- Employees on-street at certain times?
- Increase availability of parking for residents?
Visitors?
- Maintain free parking for residents/visitors?
- Available revenue for neighborhood improvements?

Strategies

- Striping spaces/increase enforcement
- Residential parking permit program
- Alter time restrictions
- Metering/pricing
- Residential/employee permit program

Striping Spaces/Increase Enforcement

Goal: Reduce illegal parking and/or impacts to driveways, hydrants, etc

Implementation:

- Stripe actual spaces where parking is allowed
- Observe and ticket vehicles not legally parked

Benefits:

- Eliminates conflicts

Disadvantages:

- Will not deter employee parking
- Costs associated with striping, maintenance, & increased enforcement

Residential Parking Permit Program

Goal: Eliminate non-residential parking in area

Implementation:

- Requires state level legislation
- City ordinance regarding details for program
- Distribute permits, enforcement

Benefits:

- Eliminates employee parking

Disadvantages:

- Limited parking per household
- Costs associated with permitting & enforcement

Time Restrictions/Exempt Residents

Goal: Limit the impact of long-term parking on-street with advantage to residents

Implementation:

- Impose time limit (2-4 hours) during the day
- Residential parking permits

Benefits:

- Residents have ability to park without time limits
- Parking still available to others including visitors
- Most likely eliminate employee parking

Disadvantages:

- Costs for permitting, signage, & enforcement

Parking Pricing/Benefits District

Goal: Limit the impact of long-term parking on-street with advantage to residents and revenue for neighborhood improvements

Implementation:

- Impose time limit (2-4 hours) during the day
- Impose parking pricing
- Residential parking permits
- Establish protocol with the City regarding use of revenues

Benefits:

- Residents have ability to park without time limits
- Parking still available to others including visitors
- Revenue for neighborhood improvements

Disadvantages:

- Pricing may reduce demand such that revenue is not significant
- Cost to visitors if not included in permit program
- Costs associated with meters, operations, collections, & permitting

Residential & Employee Permit Program

Goal: Share, but limit on-street parking with employees for a fee

Implementation:

- Determine number of permits allowed, time restrictions
- Impose parking permit pricing for employees
- Residential parking permits
- Establish protocol with the City regarding use of revenues

Benefits:

- Reduced employee demand
- Revenue for neighborhood improvements

Disadvantages:

- Pricing may reduce demand such that revenue is not significant
- Costs associated with meters, operations, collections, & permitting

Next Steps

- Define future scenario
- Develop alternatives & best practices
 - ✓ More defined benefits/disadvantages
 - ✓ Implementation procedures
 - ✓ Operations & maintenance considerations
 - ✓ Financial implications
 - ✓ Impact to neighborhood
- Technical Memorandum #2
- Steering committee meeting

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Residential Parking Benefits District Study Fruit Belt Neighborhood

TM#2 – Strategies & Best Practices

Steering Committee Meeting

March 14, 2016

Agenda

- Introductions
- Technical Memo #1 Review
- General Considerations
- Strategies & Best Practices
- Next Steps

Study Area

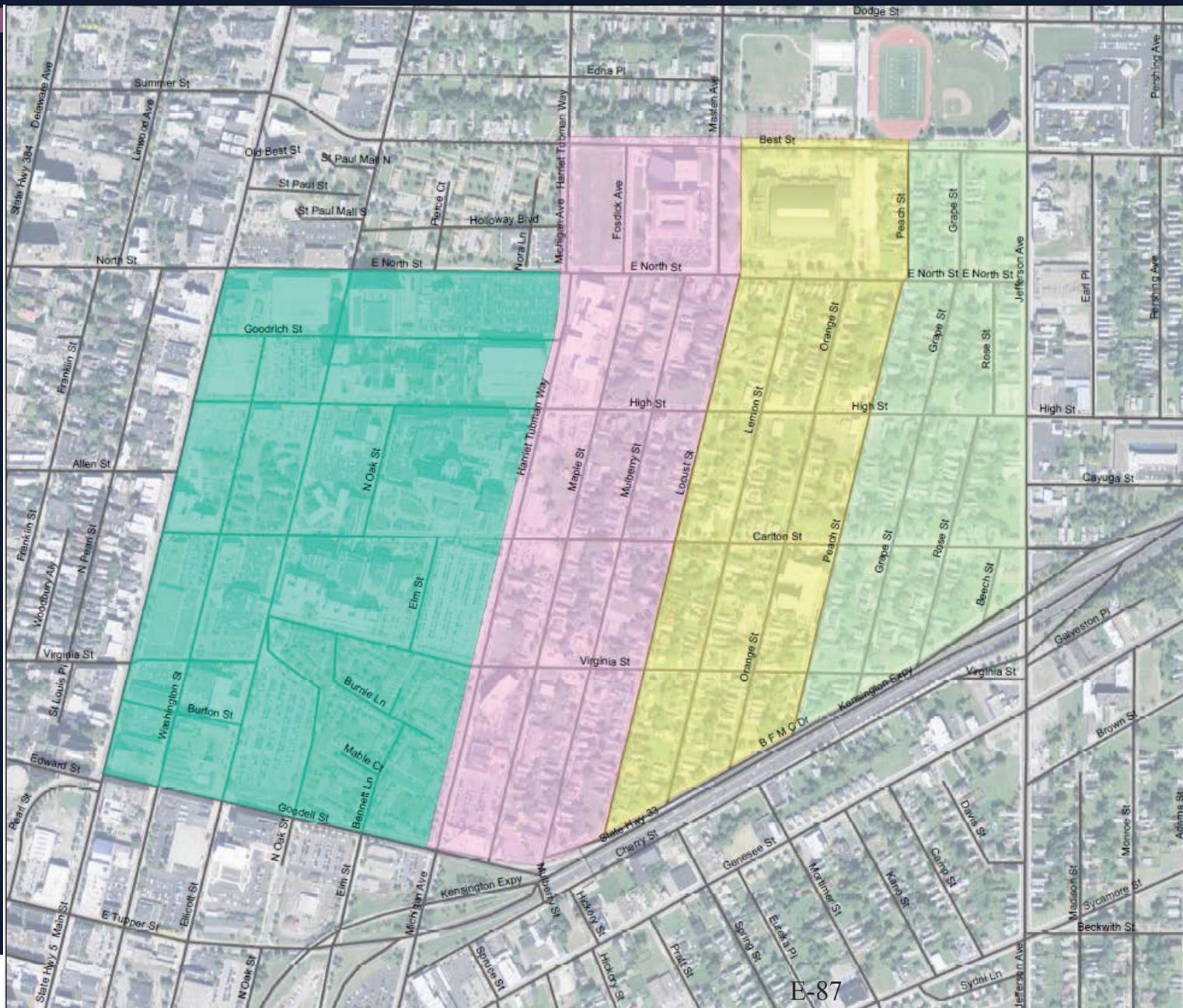


Figure 1-2.
Study Area and Streets
 Residential Parking
 Benefits District Study

- Buffalo Niagara Medical Campus
- Sub-Area A
- Sub-Area B
- Sub-Area C
- Streets



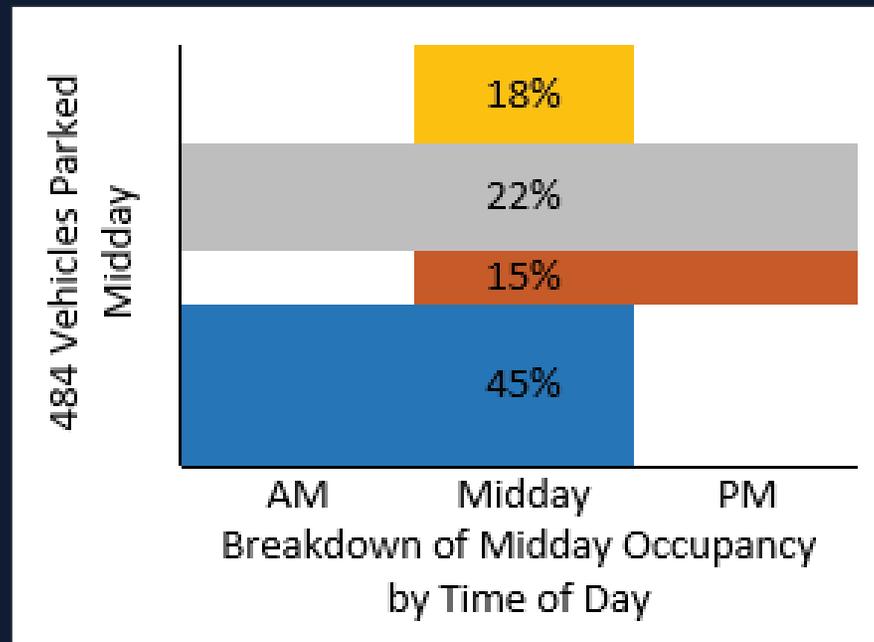
1" = 500'
 When printed at 11"x17"



E-87

Parking Supply & Demand Overview

	AM (7am – 9am)			Midday (11am – 1pm)			PM (4pm – 6pm)		
	Effective Supply	Occupancy	Utilization	Effective Supply	Occupancy	Utilization	Effective Supply	Occupancy	Utilization
Sub-area A	634	273	43%	298	276	93%	653	181	28%
Sub-area B	575	128	22%	337	163	48%	575	83	14%
Sub-area C	423	48	11%	307	45	15%	423	29	7%
Totals:	1,632	449	28%	942	484	51%	1,651	293	18%



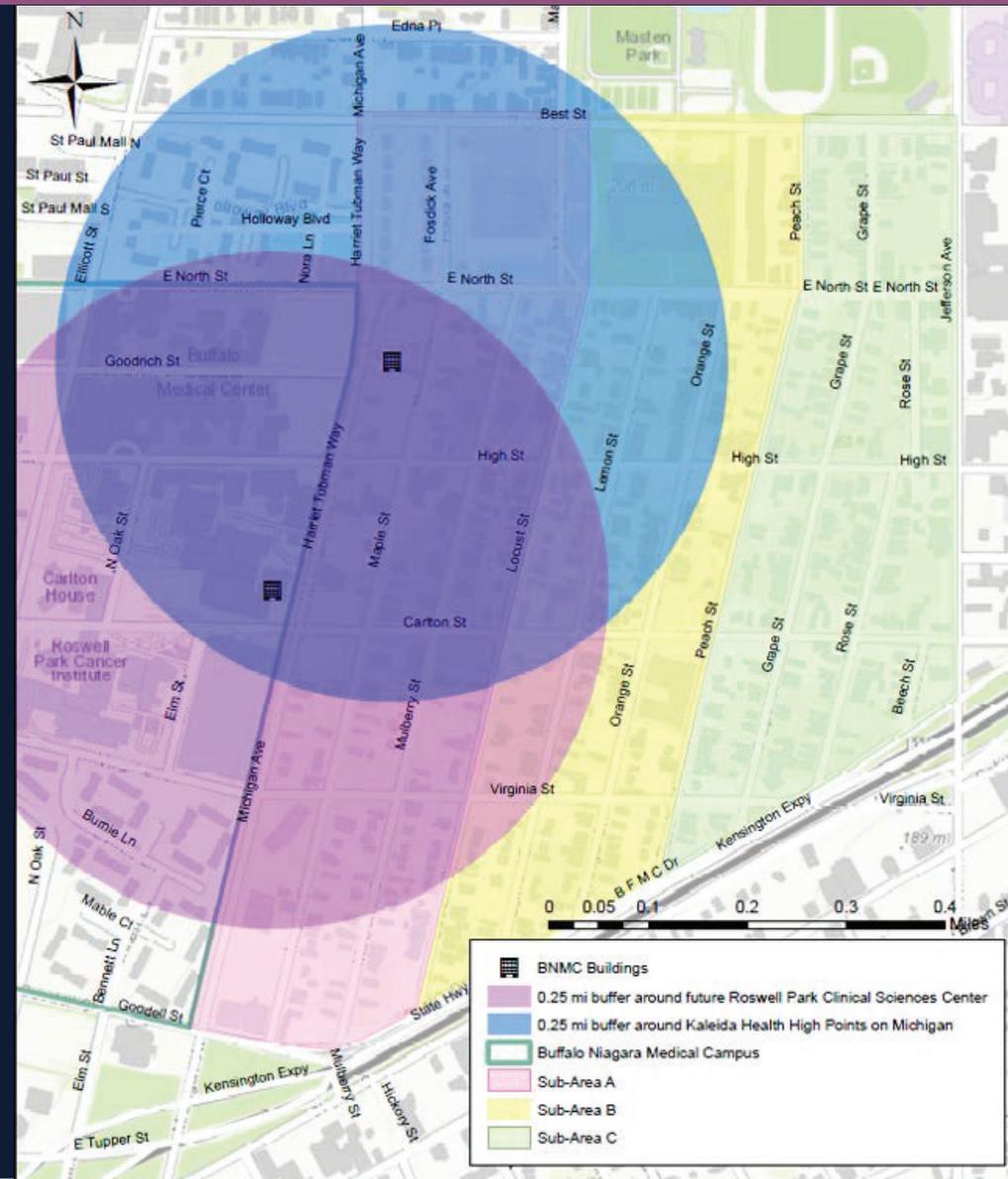
Future Scenario



E-89

Future Scenario (2020)

- 100% utilization to Orange St.
- Most people are only willing to walk ¼ mile



General Considerations

- Increased parking enforcement
- Continue to promote transportation demand management (TDM)
 - ✓ Information
 - ✓ Tools
 - ✓ Possible subsidies
- Discourage BNMC shuttles to Fruit Belt



Strategies

- Striping Spaces
- Alternate Side Street Parking
- Residential Permit Program
- Residential and Employee Permit Program
- Parking Benefits District

Striping Spaces

Implementation:

- Stripe actual spaces where parking is allowed (approx. 1900 on-street spaces)
- Stripe parking lane and designate legal parking
- Observe and ticket vehicles not legally parked
- Costs associated with pavement marking

Impacts to Residents:

- Improves access to driveways
- Provides guidance to park legally & avoid ticketing

Impacts to Employees:

- Will not restrict employee parking
- Provides guidance to park legally & avoid ticketing

Operations & Maintenance:

- Will require continued maintenance as pavement striping deteriorates
- Snow removal important to maintain effectiveness during winter months

No revenue potential for Fruit Belt Neighborhood.

Best Practice Example:

- Widely practiced/prevalent

Alternate Side Street Parking

Implementation:

- Switchover time – inconvenient for a typical work day
- New signage will be required indicating legal parking times and locations
- Costs associated with new signage

Impacts to Residents:

- Improves traffic circulation
- Possible inconvenience to residents & guests for switchover
- Less available parking supply than what is now available during 4pm and 9am hours

Impacts to Employees:

- Inconvenient to employees during typical work day

Operations & Maintenance:

- Will require continued maintenance of signage

No revenue potential for Fruit Belt Neighborhood.

Best Practice Example:

- City of Syracuse – University Hill area

Residential Permit Program

Implementation:

- Requires state level legislation
- City ordinance regarding details for program
- Parking Board/Committee to be established to administer program
- 20% of parking spaces in program area are allocated to short-term, non-permit parking users
- New signage will be required indicating legal parking times and locations

Impacts to Residents:

- No restrictions or time limits with permit/visitor passes
- Reduced congestion and easier access for emergency and home based services
- Limited number of permits available per household
- Potential permit costs

Impacts to Employees:

- Will eliminate on-street long-term parking
- 20% (at most) of parking in Fruit Belt will be available for short-term

Operations & Maintenance:

- Will require additional efforts for City of Buffalo – committee/board/administrator to oversee program
- Location with trained staff to distribute passes, handle monetary transactions, and consumer support
- Will require continued maintenance of signage

Revenue potential:

- Dependent on costs associated with permits, signage, staff requirements, and facility needs

Best Practice Examples:

- City of Ithaca – Cornell University area / Boston, MA / San Francisco, CA / Pasadena, CA

Residential & Employee Permit Program

Implementation:

- Requires state level legislation
- City ordinance regarding details for program
- Parking Board/Committee to be established to administer program
- 20% of parking spaces in program area are allocated to short-term, non-permit parking users
- New signage will be required indicating legal parking times and locations

Impacts to Residents:

- No restrictions or time limits with permit/visitor passes
- Reduced congestion and easier access for emergency and home based services
- Potential permit costs; potential subsidies
- Limited number of permits available per household

Impacts to Employees:

- Still able to park in Fruit Belt at cost of permit
- Cost less than market-rate but more than alternative modes of transportation

Operations & Maintenance:

- Will require additional efforts for City of Buffalo – committee/board/administrator to oversee program
- Location with trained staff to distribute passes, handle monetary transactions, and consumer support
- Will require continued maintenance of signage

Revenue potential:

- Dependent on costs associated with permits, signage, staff requirements, and facility needs

Best Practice Example:

- City of Rochester, NY – Corn Hill Neighborhood

Parking Benefits District

Implementation:

- Residential parking permit program
- Impose time limit (2-4 hours) with fees during the day for non-permit holders
- Establish protocol with the City regarding use of revenues

Impacts to Residents:

- No restrictions or time limits with permit/visitor passes
- Reduced congestion and easier access for emergency and home based services
- Potential permit costs; potential subsidies
- Limited number of permits available per household

Impacts to Employees:

- Still able to park in Fruit Belt at cost of permit
- Cost less than market-rate but more than alternative modes of transportation

Operations & Maintenance:

- Will require additional efforts for City of Buffalo – committee/board/administrator to oversee program
- Location with trained staff to distribute passes, handle monetary transactions, and consumer support
- Will require continued maintenance of signage and payment equipment

Revenue potential:

- Dependent on costs associated with permits, payment equipment, signage, staff requirements, and facility needs

Best Practice Example:

- City of Austin, TX – West Campus Neighborhood

Alternative Strategy Summary

	Alternatives				
	Striping Spaces	Alternate Side Street Parking	Permit Program: Residential	Permit Program: Residential & Employee	Parking Benefits District
Ease of Implementation					
Cost of Implementation					
Cost to Residents					
Impact to Resident Supply					
Reduce BNMC Employee Parking					
Operations & Maintenance Effort					
Revenue Potential					

- Low/easy 
- Medium 
- High/difficult 

Best Practices Summary

Program Type	Best Practice Example
Striping Spaces	Buffalo, NY Complete Streets Initiative
Alternate Side Street Parking	Syracuse, NY- University Hill Area
Residential Permit Program	Ithaca, NY- Cornell University Neighborhood
	Boston, MA
	San Francisco, CA
	Pasadena, CA
Residential & Employee Permit Program	Rochester, NY- Corn Hill Neighborhood
Parking Benefits District	Austin, TX- West Campus Neighborhood

Next Steps

- Receive committee comments through March 25th
- Develop Implementation, Operations & Financial Plan for preferred alternative
- Submit and review Draft Final Report with Steering Committee (late May 2016)

Appendix F – Financial Information

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Financial Assumptions & Estimates

Implementation Cost Summary

Costs for implementation include that for signage, cost control, permits, and marketing materials.

Source: C&S Engineers, 2016

Item	Description	Units	Unit cost	Cost	
Signage	166 signs	172	\$320	\$55,040	
Cost Control	400 single/double-space meters or 40 pay-stations	400	\$550	\$220,000	
Permits	1,000 resident/500 employee			\$2,000	
Marketing/Promotion	Printed/mailed materials, website URL, incentives, misc			\$1,000	
Total				\$278,040	Meters
				\$406,040	Pay-stations

Notes: Implementation cost estimate does not include city staff labor
(assumed city staff will install signage & cost control)
Cost control estimates based on materials provided by MacKay Meters

Annual Operations Cost Summary

Costs for operations include estimated labor and monitoring.

Source: C&S Engineers, 2016

Item	Description	Months	Monthly Cost	Annual Cost	
Staff - Permits/Database Maintenance	Assume 1 FTE @ \$45,000/year @ 50% for 1 month then 25% for remaining 11 months	12	\$3,750	\$12,188	
Staff - Marketing/Promotion	Assume 1 FTE @ \$45,000/year @ 50% for 1 month then 5% for remaining 11 months	12	\$3,750	\$6,000	
Permits	1,000 resident/500 employee			\$2,000	
Marketing	Assume implementation efforts/costs occur annually for continued promotion Printed/mailed materials, website URL, incentives, misc			\$1,000	
Meter Monitoring (service by provider)	400 single/double-space meters (\$15/meter/month) or 40 pay-stations (\$55/station/month)	12	\$6,000	\$72,000	
	Annual pay-station software update (\$500/station/year)	-	-	\$20,000	
Total				\$93,188	Meters
				\$67,588	Pay-stations

Notes: FTE - full-time staff equivalent
Parking regulation enforcement/ticketing/collections efforts not included
Maintenance of signage & meters/pay-stations not included
Cost control estimates based on materials provided by MacKay Meters

Potential Revenue

Annual revenue potential - permits (\$8,500/month)	\$102,000
Annual revenue potential - on-street meters	\$234,000

Syracuse (based on 2011 report)

parking meter revenue = \$1,694,084
Number of metered spaces = 1261
pricing for 1 hour = \$0.75
annual revenue per space = \$1,343.44

metered spaces in Fruit Belt 400
potential annual revenue per space = \$537,377.95

Buffalo assumptions

metered spaces in Fruit Belt 400
daily metered hours (8-5) 9
days per week metered 5
weeks in a year 52
pricing for 1 hour \$1
daily max revenue per space \$9
max annual revenue per space = \$2,340
max annual revenue for study area (400 spaces) = \$936,000

Assume 75% occupancy = \$702,000
Assume 50% occupancy = \$468,000
Assume 25% occupancy = \$234,000

Financial Assumptions & Estimates

Revenue Potential

Source: C&S Engineers, 2016

	2016				2017			2018		2019		2020	
	Implementation	Operations	Revenue ¹	Income	Running Total Cost ²	Running Total Revenue ³	Income	Running Total Cost	Running Total Revenue ³	Running Total Cost	Running Total Revenue ³	Running Total Cost	Running Total Revenue ³
Meters	\$278,040	\$93,188	\$336,000	-\$35,228	\$464,415	\$672,000	\$207,585	\$557,603	\$1,008,000	\$650,790	\$1,344,000	\$743,978	\$1,680,000
Paystation	\$406,040	\$67,588	\$336,000	-\$137,628	\$541,215	\$672,000	\$130,785	\$608,803	\$1,008,000	\$676,390	\$1,344,000	\$743,978	\$1,680,000

1 - Revenue includes potential revenue from permits and metered short-term space:

2 - Running total cost includes implementation and annual operations to that year

3 - Running total revenue totals annual potential revenue to that year

By 2020, the higher initial cost for the paystations are evened out by the higher monitoring costs for the meters:



Mackay Meters, Inc.
 1342 bercrombie Road.
 New Glasgow, Nova Scotia
 Canada B2H 5E3

Tel: (902) 752-5124
 Fax: (902) 752-5955

RE: Supply and Delivery of MacKay Parking Meters, Pay Stations and Accessories

Dear ,

Mackay Meters, Inc. (MacKay) is pleased to submit a quote for the Supply and Delivery of MacKay parking meters, pay stations and accessories. We have included product brochures/specification sheets for each product.

Parking Meters

MacKay has two main offerings for single/duo space parking meters; the Guardian™ X series meter and the mkBeacon™ wireless meter.

The X Series mechanism comes in three configurations; the X, the XL and the XLE. Each provides coin payment. The XL adds smart card acceptance and the XLE adds smart cards and long battery life. The mechanisms can be placed into most housings including the MKH4000 zinc/iron housing.



Guardian™ XLE Meters

Mackay Guardian™ XLE meters with optional MKH 4000 housings and yolks

<i>ITEM</i>	<i>QTY</i>	<i>DESCRIPTION</i>	<i>UNIT PRICE</i>	<i>TOTAL</i>
1	1	Guardian™ XLE Coin/Card meters	\$199.00	\$199.00
2	1	MKH 4000 Light Duty Zinc Housing	\$250.00	\$250.00
3	1	Yokes with mounting hardware (2 meters 1 pole) - OPTIONAL	\$49.00	\$49.00
Subtotal				\$449.00
Shipping				extra
Installation				extra
TOTAL				\$449.00

mkBeacon™ Meter

The mkBeacon™ is MacKay's newest single/duo space meter. It offers not only coin and smart card payment acceptance but also credit card and contactless payment acceptance. Each mkBeacon includes a cellular modem that communicates with a central server for real time credit card authorization, alert notifications, financial data logs and enforcement information notification.



mkBeacon™ meters with MKH4000 housing vault

ITEM	QTY	DESCRIPTION	UNIT PRICE	TOTAL
1	1	mkBeacon™ wireless single space meters	\$450.00	\$450.00
2	1	Complete with MKH 4000 vault	550.00	550.00
			Subtotal	\$550.00
			Shipping	Extra
			Installation	Extra
			TOTAL	\$550.00

Hosted Remote Monitoring and Notification Service for mkBeacon™ Including Credit Card Payment Gateway and Cellular Communications

MacKay will supply a hosted system for performing parking management functions. The Parking Management System will include:

- Sentinel™ MMS, used to remotely monitor the on-street status of the mkBeacon™ and notify the client of any alerts. Also Sentinel can generate a variety of reports on the information downloaded periodically each day from the mkBeacon™ over a wireless network.
- Cellular communications for each meter that allow for data to flow to Sentinel™ MMS or for credit card authorizations through CreditCall Ltd.

The standard fee for these hosted services, including the cellular communications and the credit card gateway services is as follows:

Gateway/Hosted Remote Monitoring and Notification Services for mkBeacon™ meter
\$5.50 per meter per month + \$0.11 per credit card transaction or \$8.00 per meter per month – includes all transactions*

*Note: Price does not include any merchant processor fess. Those are the responsibility of the municipality.

mkBeacon™ 2-Bay meters with MKH4000 housing vault

The mkBeacon™ 2-Bay meter offers all the abilities of the single space mkBeacon, however, it adds the ability to select a space first before paying. By placing an mkBeacon™ 2-Bay on a pole between two spaces the meter can cover both spaces for cost of one mechanism and vault.



ITEM	QTY	DESCRIPTION	UNIT PRICE	TOTAL
1	1	mkBeacon™ 2-Bay wireless double space meter	\$695.00	695.00
2	1	Complete with MKH 4000 Housing	795.00	795.00
			Subtotal	\$795.00
			Shipping	Extra
			Installation	Extra
			TOTAL	\$795.00

Hosted Remote Monitoring and Notification Service for mkBeacon™ 2-Bay Including Credit Card Payment Gateway and Cellular Communications

MacKay will supply a hosted system for performing parking management functions. The Parking Management System will include:

- Sentinel™ MMS, used to remotely monitor the on-street status of the mkBeacon™ 2-Bay and notify the client of any alerts. Also Sentinel can generate a variety of reports on the information downloaded periodically each day from the mkBeacon™ 2-Bay over a wireless network.
- Cellular communications for each meter that allow for data to flow to Sentinel™ MMS or for credit card authorizations through CreditCall Ltd.

The standard fee for these hosted services, including the cellular communications and the credit card gateway services is as follows:

Gateway/Hosted Remote Monitoring and Notification Services for mkBeacon™ 2-Bay meter
\$9.00 per meter per month + \$0.11 per credit card transaction or \$15.00 per meter per month – includes all transactions*

PAY STATIONS

MacKay has two options for pay stations: the trusted MacKay Guardian™ Multi Elite pay station or the new MacKay Tango pay station.

The MacKay Guardian Multi Elite (Elite) pay station supports pay and display, pay by space and pay by plate configurations. It is available with AC or Solar power and supports several payment options include coins, credit cards, smart cards, contactless cards and bills. See brochure/specification sheet for details.



MacKay Guardian Multi Elite Pricing

QUANTITY	DESCRIPTION	UNIT PRICE	TOTAL
	AC Powered or Solar Powered Machines		
1	Configured Pay by Plate Machine [complete]	\$8595.00	\$8595.00
	MacKay Guardian™ Multi Elite – 40 Ah battery, accepts coins, credit card, smart cards, with GPRS or CDMA modem for communications.		
	Standard one (1) year warranty.	included	included
	Subtotal	\$8595.00	\$8595.00
	Shipping	Extra	Extra
	Installation	Extra	Extra
	TOTAL	\$8595.00	\$8595.00

Hosted Remote Monitoring and Notification Service for Multi-Space Machine Including Credit Card Payment Gateway and wireless Communications

MacKay will supply a hosted system for performing parking management functions. The Parking Management System will include:

- Sentinel, used to remotely monitor the status of the Multi Elite and to generate a variety of reports on the information downloaded periodically each day from the Multi Elite over a wireless network. Includes remote Alert notification software, used to send via e-mail, alerts received from the Multi Elite.
- Credit Card gateway for real-time payment authorization (CreditCall).
- Cellular Communications using a supported supplier

The standard fee for these hosted services, including the credit card gateway services is as follows:

Gateway/Hosted Remote Monitoring and Notification Services for Multi-Space Machine	
Hosted Services	Monthly Fee per Terminal
Sentinel™ Meter Management System	\$55

Note: In the event the client chooses an Ethernet connection, the wireless modems will be disabled and no air time packages will be required.

Chip Card Reload Software for Pay Stations

The following pricing is for the licensing of the chip card/ smart card reload software onto the Elite pay stations.

Chip Card reload software price per pay station per year (paid annually)	
Chip card reload software	\$500.00

*Note: Price does not include any merchant processor fess. Those are the responsibility of the municipality.

MackKay Tango

The MackKay Tango is a lighter pay station that supports pay and display, pay by space and pay by plate configurations. It is available with solar power only and supports coin, credit card, smart card and contactless payment. It does not support bill payment and does not have a coin escrow or coin return. See brochure for complete details.



MackKay Tango Pricing

QUANTITY	DESCRIPTION	UNIT PRICE	TOTAL
	Solar Powered Machines		
1	Configured Pay by Plate [complete]	\$6000.00	\$6000.00
	MackKay Tango - 18 Ah battery, accepts coins, credit card, smart cards, with GPRS or CDMA modem for communications.		
	Standard one (1) year warranty.	included	included
	Subtotal	\$6000.00	\$6000.00
	Shipping	Extra	Extra
	Installation	Extra	Extra
	TOTAL	\$6000.00	\$6000.00

Hosted Remote Monitoring and Notification Service for Multi-Space Machine Including Credit Card Payment Gateway and wireless Communications

MackKay will supply a hosted system for performing parking management functions. The Parking Management System will include:

- Sentinel, used to remotely monitor the status of the Tango and to generate a variety of reports on the information downloaded periodically each day from the Tango over a wireless network. Includes remote Alert notification software, used to send via e-mail, alerts received from the Tango.
- Credit Card gateway for real-time payment authorization (CreditCall).

- Cellular Communications using a supported supplier

The standard fee for these hosted services, including the credit card gateway services is as follows:

Gateway/Hosted Remote Monitoring and Notification Services for Multi-Space Machine	
<u>Hosted Services</u>	<u>Monthly Fee per Terminal</u>
Sentinel™ Meter Management System	\$55

Note: In the event the client chooses an Ethernet connection, the wireless modems will be disabled and no air time packages will be required.

Please let me know if you require anything further.

Best Regards,

Bill Phillips
Regional Manager

MackKay

GUARDIAN™ XL Model

MackKay mechanism

XL



MackKay Guardian™ XL Model Advanced Electronic Mechanism

The MackKay Guardian™ mechanism is the parking industry's most respected and foremost choice for single space parking meter solutions.

The MackKay Guardian™ X Series is MacKay's neXt generation of electronic mechanisms. With three models to choose from, the X, XL and XLE utilize the proven MackKay Guardian™ pedigree of being **tough, reliable and accurate**.

The MackKay Guardian™ X Series has been designed to meet the challenges, and demanding requirements of our customer's diverse single space parking needs.

Designed for flexible enforcement, programming and ease of maintenance.

Count Down Timer Accuracy and Real Time Clock Accuracy certified by an independent laboratory.



- Features include:
 - MacKay's patented SmartChute™ coin validation technology,
 - Automatically scheduled profile/rate changes,
 - LED back light for nighttime use,
 - Large easy to see, rear violation LCD.

Manufactured under stringent ISO 9001:2000 certified quality processes.

MacKay Meters backs its entire MackKay Guardian™ product line with a solid warranty based on the confidence, quality and lineage of its products.

<over for specifications>

Straight-drop chute
Interchangeable
No calibration necessary

Large LCD for improved on-street visibility



www.mackaymeters.com





MackKay Guardian™ XL Model

General Specifications

- Compatible with all MackKay mechanism housings and most competitors' products.⁴
- Manufactured under ISO 9001:2000 certified quality processes.
- Designed to work under extreme environmental conditions.
- Can withstand prolonged exposure to intense UV radiation, humidity, rain, sleet, snow and grime and under normal street vibration.
- Operating temperature range: -40°C (-40°F) to 80°C (176°F).



MackKay Guardian™ XL Model (MTL)

Internal Time Keeping

- Equipped with a time-of-day clock that is accurate to a few seconds-per-week.
- Real Time Clock Accuracy and Count Down Timer Accuracy is certified by an independent laboratory.
- A 365-day calendar/Real Time clock with short-term power backup during battery exchanges/replacement.
- Time-of-day clock is automatically re-synchronized to the handheld computer's time-of-day clock during data transfer.
- Perpetual and automatic daylight savings time change feature.⁴
- Automatically introduce a scheduled profile/rate change.



MackKay Guardian™ XL Model (WSH)

Powered by Patented MackKay SmartPower™ Technology

- Supports 6V and 9V alkaline battery packs.
- Can operate for a period in excess of 12 months⁴ using a 6V (4xAA) alkaline pack, dual 9V alkaline pack⁴, or single 9V lithium pack.



MackKay Guardian™ XL Model (2 - 4 bay / button select)

Front Display

- High contrast and high visibility Liquid Crystal Display (LCD) and Light Emitting Diode (LED) technologies.
- LCD has programmable time-of-day/duration and LED back light for effective night-time operation.
- Large display - 2.5cm (1 inch) x 5cm (2 inches). Shows four 1.27cm (1/2 inch) high numeric digits, colon, plus seven additional icon/symbols/messages.

Rear Display

- Large and highly visible display - 2.5cm (1 inch) x 7.5cm (3 inches). Flashes red and silver to indicate "Time Expired" or solid silver for valid parking time.
- Can display text "EXPIRED", "OUT OF ORDER", two 1.27cm (1/2 inch) high No Parking Symbols.
- Optionally supports dual numeric displays (time displayed front and back).³

LED Display

- Dual colour (Red/Green) Super Bright LED's on both front and rear.
- Flashing LED visible at distance of 24 meters (80 feet) at night.
- Programmable for maximum flexibility in enforcement options.

* MTL configuration with large LED light on front and red LCD screen.
 **WASH configuration with large LED lights on front and back.
 ***2 - 4 Bay configuration with button to select space.

Patented SmartChute™ Coin Discriminator

- 3-coil design provides accurate coin reads and long life.
- Straight-drop/clear view coin chute allows for superior detection and removal of foreign objects.
- Coin chute is easily and quickly replaced/serviced in the field without the need for special tools.
- Coin chute calibration or chute training is **not** required.
- Sorts up to 16 different coin/token signatures and uses a single entrance slot.
- Can be programmed to detect non-metallic jams such as paper/gum.
- Validates and discriminates coins electronically by two different coil sensors/methods.
- Invalid coin indicator on display.

Communication and Data Transfer

- Supports five (5) modes of communication and programming: IR (infrared); RF (radio frequency); peripheral port; and if card reader installed, card slot, and card adapter port.
- A typical meter rate or parameter change in less than 10 seconds using IR.
- Transfer of coin audit data, as well as clock date re-synchronization, in less than 3 seconds using IR. Faster data transfers may be possible using other communication modes.
- Coin audit totals are always protected and stored in non-volatile memory.
- Audit information retained during battery failure and/or replacement.
- Status of meter uploaded when interrogated or otherwise stimulated.
- Meter information can be imported into an electronic parking citation issuance system to be printed on a ticket at the time of issuance.⁴

ISO Card System⁴

- Programmable to use one (or more) of the following ISO7816 compliant card payment technologies:
 - Microprocessor cards capable of using sophisticated security algorithms to deter fraud.⁴ (e.g. DES)
 - Reloadable/reusable type memory card used as a token based stored value card.
 - Disposable type memory card used as low cost token based stored value card.
 - Card payment schemes requiring active authentication.⁴
- Card reader rated at 200,000 insertions and constructed for easy maintenance.

Special Expansion Features

- Two (2) expansion ports, (card reader edge connection port and main board edge connection port), are accessible from within the meter frame. These ports act as integration points for future add-on hardware and accessories.
- Meter supports an optional button interface located next to coin slot.⁴
- Other custom applications/configurations available upon special request.⁴

Memory Size & Programmable Features

- Standard programming resident in 60 KB re-programmable memory.
- Highly flexible rate/tariff/max-time structure including:
 - Up to eight (8) defined rates with defined max time for each.
 - Standard rate operation.
 - Time-of-day rate/max time control.
 - Day-of-week rate/max time control.
 - Day-of-year rate/max time control.
 - Progressive/regressive tariffs.⁴
 - Cumulative grace.

Software System Management Features

- Meter revenue audit including individualized coin counts, plus total invalid coin count.
- Separate time-stamped transaction (coin/card) and maintenance logs for ticket adjudication.
- Transaction log stores time-stamped data for the last approx. 450 coin and/or card transactions.
- Maintenance log stores time-stamped data for the last approx. 100 maintenance events.
- Coin discrimination data is retrievable in the field for chute performance analysis by factory personnel.
- Swapping/moving meters within a meter system.
- Audit disable for coin/card check during:
 - Maintenance/testing.
 - Time/rate programming.
 - Meter maintenance.
 - Meter/post inventory.
- Password protected - user and group level security features.

Handheld Computer

- Rugged handheld computer, with Ethernet/serial communications/ rechargeable cradle and attached IR/RF communications device.
- Wide range of accessories available.

Warranty

J.J. MacKay Canada Limited, the manufacturer, guarantees for a period of one year from the date of shipment against defects in workmanship and/or materials.

Contact your local representative for further information.

[1] Actual battery life achieved may vary significantly depending on many factors including but not limited to: battery manufacturer, age of battery when installed, meter usage, hours of operation, features implemented, and operating environment.
 [2] Requires Dual 9V adapter - Part # 35GD000055
 [3] Factory installed option, 6-8 weeks lead time.
 [4] Certain restrictions and/or costs may apply.

As our policy is one of continuous product improvement and development, we reserve the right to alter product specification and design. Photos are representative; product appearance may differ.

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 Fax: (902) 752-4889
 Email: customer.service@mackaymeters.com
 Web: www.mackaymeters.com





MK BEACON™



MKBEACON™



Key features:

- Supports single-space or multi-bay parking.
- EMV compliant, PA-DSS certified and FCC approved.
- Accepts coins, credit cards, contactless credit cards and smart cards.
- MacKay's patented SmartChute™ coin validation technology.
- Green Technology - High efficiency solar panel providing long lasting power.
- Weatherproof Piezo style keypad.
- Superior design for serviceability providing quick access to components for on-street maintenance.
- Meter components protected in strong, light-weight polycarbonate housing.
- Large high contrast graphics display.
- Bright, front and rear enforcement LEDs can be easily seen from passing enforcement vehicles.
- Night light on front for night use.
- Powerful off-site monitoring capabilities using Sentinel™ Meter Management System.
- Fits into existing housings or ships with new vault and coin can ready for the street.
- Manufactured under stringent ISO 9001:2008 certified quality process.
- MacKay Meters backs its product lines with a solid warranty based on the confidence in the quality of its products.

<over for specifications>



New User-Friendly Design Fits Existing Housing Vaults



Easy Access for On-Street Servicing



General Specifications

- Compatible with all MacKay mechanism housings and many competitor's housings.
- Manufactured under ISO 9001:2008 certified quality processes. Strong polycarbonate housing front and stainless steel back.
- Designed to work under extreme environmental conditions.
- Operating temperature range: -22°F (-30°C) to 176°F (80°C).

Power Source Details

- High efficiency, solar recharged, lithium-ion battery pack.
- High capacity 6 x D size alkaline battery pack¹
- Battery packs are easy to replace on-street without the use of tools.

Keypad & Human Interface Details

- Sealed, weather-proof, Piezo style buttons for selecting menu items.
- Standard buttons include an "+" for increase, "-" for decrease, "✓" for accept and "X" for cancel.
- Audible feedback with all button presses.



Front Graphical Display

- High contrast and high visibility Liquid Crystal Display (LCD) and Light Emitting Diode (LED) backlight technologies.
- LCD has fully programmable displays and LED back light for effective night-time operation.
- Large 4.25" (108 mm) display.
- Client controlled customizable screens that can be sent remotely using Sentinel™ Meter Management System (MMS)

Front and Rear LEDs

- Dual colour (Red/Green) Super Bright LED's on both front and rear.
- Flashing LED visible at distance of 80 feet (24 meters) at night.
- LED "Night light" shines on meter front during dark hours.

Communication and Data Transfer

- Supports multiple secure interfaces for communication including:
 - Wireless cellular radio 3G and 4G cellular (HSPA, EVDO, LTE)
 - X-Key programming port
 - Future Expansions

[1] Actual battery life achieved may vary significantly depending on many factors including but not limited to: battery manufacturer, age of battery when installed, meter usage, hours of operation, features implemented, and operating environment.
 [2] Certain restrictions and/or costs may apply.

Coin Payment

- Patented SmartChute™ coin discriminator proven in hundreds of thousands of meters worldwide.
- 3-coil design provides accurate coin reads and long life.
- Straight-drop/clear view coin chute allows for superior detection and removal of foreign objects.
- Coin chute is easily and quickly replaced/ serviced in the field without the need for special tools.
- Coin chute calibration or chute training is not required.
- Sorts up to 16 different coin/token signatures and uses a single stainless steel entrance slot.
- Can be programmed to detect non-metallic jams such as paper/gum.
- Validates and discriminates coins electronically by two different coil sensors/methods.
- Invalid coin indicator on display.

Credit Card and Smart Card Payment

- Single card slot for both credit card and smart card payment.
- Card reader rated at 50,000 insertions and is easily and quickly replaced / serviced in the field without special tools.
- Real time credit card authorization through cellular communications.
- PA-DSS validated.
- Programmable² to support numerous ISO7816 compliant smart card payment technologies including:
 - Microprocessor cards
 - Reloadable stored value memory cards
 - Other custom card payment schemes

Contactless Payment

- compact module easily serviced/replaced
- EMV compliant reader supports contactless payment applications with the following: Visa® payWave, MasterCard® PayPass™, American Express® ExpressPay®, Discover® Network Zip.
- EMV Certified by major card associations, FCC/CE Certified Class B

On-Street Serviceability

- Easy on-street replacement of cellular modem, coin chute, card reader, batteries, contactless reader, and solar panel.

Transaction Data

- All operational, maintenance and financial data is sent wirelessly to Sentinel™ MMS.
- Transaction log stores time-stamped data for the last 2,000 coin and/or card transactions.



Programmable Features

- Highly flexible rate/tariff/max-time structure including:
 - Up to sixteen (16) defined rates with defined max time for each.
 - Standard rate operation.
 - Time-of-day rate/max time control.
 - Day-of-week rate/max time control.
 - Day-of-year rate/max time control.
 - Progressive/regressive tariffs.
 - Cumulative grace.

Meter Management System Features

- Remote programming and monitoring using Sentinel™ MMS.
- Meter revenue audit including credit cards by type, individualized coin counts, plus total invalid coin count.
- Separate time-stamped transaction (coin/card) and maintenance logs for ticket adjudication.
- Transaction log stores time-stamped data for the coin and card transactions.
- Maintenance log stores time-stamped data for the all maintenance events.
- Swapping/moving meters within a meter system.
- Audit disable for coin/card check during:
 - Maintenance/testing.
 - Time/rate programming.
 - Meter maintenance.
 - Meter/post inventory.
- Password protected - user and group level security features.

Warranty

J.J. MacKay Canada Limited, the manufacturer, guarantees for a period of one year from the date of shipment against defects in workmanship and/or materials.

Contact your local representative for further information.



95LT0000450v3-03/16

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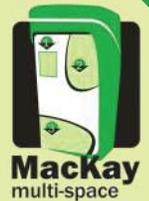
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Mackay GUARDIAN Multi Elite



Mackay Guardian™ Multi Elite



Key features:

- High strength stainless steel keeps it secure and rust free.
- High-security, large capacity, stainless steel cash box.
- Microsoft® Windows® CE operating system, combined with a 32-Bit ARM® Processor,
- 32 MB of SDRAM and 32 MB of Flash memory.
- Flexible, modular design that is easy to upgrade, service and maintain.
- Powerful off-site monitoring capabilities by adding a communications kit and Sentinel™ Meter Management System. Monitor your equipment remotely, generate reports, and receive alerts, no matter where you are.
- Comprehensive and easy-to-use configuration menus.
- ADA Compliant.
- Features a color VGA Liquid Crystal Display with back light, capable of displaying graphics.
- English? Español? Français? The multi-language capability allows users to select the language of their choice to carry out transactions.
- Offer end users security, convenience, and reject fraudulent payment. Use Mackay's On-line Real-time Credit Card Approval feature utilizing secure PCI compliant electronic payment processes.
- Mackay Meters backs its product lines with a solid warranty based on the confidence in the quality of its products.



Colour Display



Solar Option



Illuminated
LED Accept Button

<over for specifications>

SPECIFICATIONS

General Specifications

Environmental

- Operating temperature range¹: -20°C (-4°F) to +50°C (+122°F)
- Humidity: Up to 95% RH (non condensing)

Cabinet Materials, Dimensions & Weight

- Welded reinforced Grade 304-2B stainless steel (9 gauge carbon steel equivalence)² for cabinet and doors
- Aluminium front with Lexan® display covers for the LCD screens, rate/instruction plate, LED panel and site branding display
- Total installed weight (Solar, 40Ahr battery): 113 kg (249 lbs.)
- Overall dimensions: 1524mm (60 inches) (H) x 343mm (13.5 inches) (W) x 295mm (11.6 inches) (D)
- Overall height with solar panel: 2045mm (80.5 inches)

Power Supply Configurations/Options

- AC Single Phase, 110/120/220/240VAC, 50/60 Hz
- Solar powered (20W panel) with 40Ahr or 60Ahr battery

Operating System & Hardware

- Microsoft® Windows® CE operating system
- Latest technology 32 Bit ARM® processor
- Memory 32MB SDRAM 32MB Flash

Communication Options

- Ethernet port can support hardwire (Cat5) cable or add-on WiFi devices for local network connection³
- Serial RS232 port can support either GPRS or CDMA (1X) modem³
- Both wide area or local area pay by space network options are supported, allowing payment for any space, at any machine, at any time
- Wireless handheld pay by space enforcement available

Payment Systems

- Coins
- Tokens (optional)
- Credit cards utilizing secure, on-line real-time PCI compliant processes (optional)
- MacKay Smart (Chip) Cards (optional)
- Cell phone payment (optional)
- Bills (optional)

Ticket Printing

- Thermal printer offers alphanumeric printing in various fonts and languages
- Ticket size: Standard - Short 75mm (3 inches) x 57mm (2¼ inches) or Long 100mm (4 inches) x 57mm (2¼ inches). Other lengths can be specially ordered
- Ticket capacity: 4,000 3-inch tickets per roll

Components

Display

- High contrast, color, sunlight readable, 640 x 480 pixels graphics LCD
- Viewing area 106mm (4 inches) x 78mm (3 inches)
- Self-adjusting contrast to temperature
- LED back light

Coin Acceptor

- Programmable: Accepts up to 16 coins or tokens
- Programmed coin acceptance can easily be turned on/off with a switch

Card Reader (Optional)

- Single slot, dual mode card reader captures magnetic stripe (ISO 7810/11) credit card data, and provides an ISO 7816 interface for smart card acceptance

Keypads & Buttons

- Tactile feedback keypad and buttons
- Vandal resistant and rated for resistance to impact, shock and vibration to MIL standards
- Sealed against ingress of water and dust to IP67, and designed for exposed outdoor and extreme environmental conditions
- LED accept button that lights up.

Printer

- Heavy-duty printer head with minimal moving parts ensuring quality, reliability and endurance
- Print life of over 20 million character lines
- Designed for high-resolution printing
- Guillotine type cutter with full or partial paper cutting options (software selectable)
- Accessible for ease of maintenance

Cash Box

- Two (2) supplied with each machine, each with a convenient carry handle
- Rugged, secure, high-capacity 4.2 litres (1.1 US gallon), stainless steel container
- Self-locking lid on removal, and includes a high security lock/key (unique key codes available upon request)
- Printed audit record produced when cash box is removed from machine (software selectable)

Bill Acceptor (Optional)

- Built-in, integrated bill acceptor
- Bill cassette with 600 or 1000 bill capacity secured in cash vault
- Programmed bill acceptance can easily be turned on/off on-site
- Reads bills inserted in any of 4 directions

Features

Security

- High security locks for cash box, cash vault, and main door
- Seven (7) point locking mechanism on vault door
- System monitored access sensors on main and vault doors and sensor detecting presence of cash box

Audit and Statistic

- Local printouts of grand totals and subtotals for coins, bills and card transactions per type
- Full or quick audit tickets are software selectable

Maintenance

- User-friendly graphic interface tools for diagnostics, configuration and editing
- Easy access modular design

Configuration

- Flexibility through the MacKay Guardian™ Multi Elite user interface
- Programmable multiple tariff structures such as overlapping period, pre-payment and free ticket
- User interface (display, keypad and dedicated software), provides clear and concise operating instructions, messages, and graphics
- Multi-language capability: any combination of English, French and/or Spanish is available as an option. Other languages available by special order

Web-Based Hosted Sentinel™ Meter Management System (Optional)

- Remotely monitor and generate audit, transaction and maintenance reports for all on-street equipment using a web browser and secure web portal
- User-friendly menus allow customization of tariff, ticket and display files
- Generates a variety of reports including grand totals and subtotals for coins, bills and card transactions per type, which can be exported as PDF or CSV files, or imported into other applications

MacKay Guardian™ Multi Elite Options

- AC Fan
- AC Heater Kit, includes an AC heater and an AC fan
- Customizable front graphics for main door
- Electronic Lock (vault and maintenance door)
- Keypad feedback buzzer (optionally turned off)
- Solar panel riser
- MacKay's Sentinel™ Meter Management System

Warranty

J.J. MacKay Canada Limited, the manufacturer, guarantees for a period of one year from the date of shipment against defects in workmanship and/or materials.

[1] All MacKay Guardian™ Elite components are operational within this range. Standard sealed lead acid battery operational temperature rating is from -20C (-4F) to 50C (122F) when charging, and from -20C (-4F) to 60C (140F) when discharging. AC powered machines with heaters can extend the range.
[2] Independent laboratory tests indicate that all things being equal, a component made of 11-gauge 304-2B stainless steel, would have equal or greater tensile strength, shear strength and malleability, as compared to the same component made out of 9-gauge carbon steel.
[3] May require additional MacKay Guardian™ Multi Elite software modules, or 3rd party hardware.

As our policy is one of continuous product improvement and development, we reserve the right to alter product specification and design.

Photos are representative; product appearance may differ.



95LT0000300-12/14

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Sales Office:



Mackay TANGO™



Mackay TANGO™



Key features:

- High strength stainless steel keeps it secure and rust free.
- Flexible, modular design that is easy to upgrade, service and maintain.
- Powerful off-site monitoring capabilities by adding a communications kit and Sentinel™ Meter Management System. Monitor your equipment remotely, generate reports, and receive alerts, no matter where you are.
- Comprehensive and easy-to-use configuration menus.
- ADA Compliant.
- Features a large Liquid Crystal Display with back light, capable of displaying graphics.
- English? Español? Français? The multi-language capability allows users to select the language of their choice to carry out transactions.
- Optional credit card payment. Offer end users security, convenience, and reject fraudulent payment. Use Mackay's On-line Real-time Credit Card Approval feature utilizing secure PCI compliant electronic payment processes.
- Mackay Meters backs its product lines with a solid warranty based on the confidence in the quality of its products.

<over for specifications>

www.mackaymeters.com

From the digital collections of the New York State Library.



SPECIFICATIONS

GENERAL SPECIFICATIONS

Environmental

- Extended operating temperature range¹: -20°C (-4°F) to +50°C (+122°F)
- Humidity: Up to 95% RH (non condensing)

Cabinet Materials, Dimensions & Weight

- Welded reinforced Grade 304-2B stainless steel (9 gauge carbon steel equivalence)² for cabinet and doors
- Aluminium front with Lexan® display covers for the LCD screens, rate/instruction plate, LED panel and site branding display
- Overall dimensions: 1359 mm (53.5 inches) (H) x 315 mm (12.4 inches) (W) x 249mm (13.75 inches) (D)

Power Supply Configurations/Options

- Solar powered with commercially available battery

Communication Options

- Cellular wireless technology supporting GPRS or CDMA modem³

Payment Systems

- Coins
- Tokens (optional)
- Credit cards utilizing secure, on-line real-time PCI compliant processes (optional)
- MacKay Smart (Chip) Cards (optional)
- Cell phone payment (optional)

Ticket Printing

- Thermal printer offers alphanumeric printing in various fonts and languages

COMPONENTS

Display

- High contrast, color, sunlight readable, 320 x 240 pixels graphics LCD
- Viewing area 114mm (4.5 inches) x 89mm (3.5 inches)

Coin Acceptor

- Programmable: Accepts up to 16 coins or tokens
- 3-coil design provides accurate coin reads and long life.
- Straight drop coin chute allows for superior detection and removal of foreign objects.
- High security, stainless steel coin box that holds 4.2 L or approximately 2400 US quarters.

Card Reader (Optional)

- Single slot, dual mode card reader captures magnetic stripe (ISO 7810/11) credit card data, and provides an ISO 7816 interface for smart card acceptance
- EMV upgradeable

Keypads & Buttons

- Alphanumeric keypad
- Vandal resistant and rated for resistance to impact, shock and vibration to MIL standards
- Sealed against ingress of water and dust to IP67, and designed for exposed outdoor and extreme environmental conditions
- LED accept and cancel buttons that light up.

Printer

- Heavy-duty printer head with minimal moving parts ensuring quality, reliability and endurance
- Print life of over 20 million character lines
- Designed for high-resolution printing
- Guillotine type cutter with full or partial paper cutting options (software selectable)
- Accessible for ease of maintenance

FEATURES

Security

- High security locks for cash box, cash vault, and main door
- System monitored access sensors on main and vault doors and sensor detecting presence of cash box

Audit and Statistic

- Remote monitoring of grand totals and subtotals for coins and card transactions per type
- Full or quick audit tickets are software selectable

Maintenance

- User-friendly graphic interface tools for diagnostics, configuration and editing
- Easy access modular design

Web-Based Hosted Sentinel™ Meter Management System

- Remotely monitor and generate audit, transaction and occupancy reports for all on-street equipment using a web browser and secure web portal
- Generates a variety of reports including grand totals and subtotals for coins, bills and card transactions per type, which can be exported as PDF or CSV files, or imported into other applications

Warranty

J.J. MacKay Canada Limited, the manufacturer, guarantees for a period of one year from the date of shipment against defects in workmanship and /or materials.

As our policy is one of continuous product improvement and development, we reserve the right to alter product specification and design.

Photos are representative; product appearance may differ.



Side View



95LT0000700TANGO-v2-5/16

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MKH 4000

MacKay housing



MKH 4000 Security Housing

- Featuring a precision-machined vault door constructed of durable ductile iron and special tapered design for increased strength and security.
- The MKH 4000 features our largest vault in a tough wrinkle finish with an extended coin can.
- Compatible with MacKay Meters' industry-leading electronic mechanisms and competitive products.
- MacKay Meters backs its product lines with a solid warranty based on confidence in the quality of its products.
- All MacKay housings are distinguished by their "hex" shaped top.
- Manufactured under ISO 9001:2000 certified quality processes.

ISO 9001:2000



Certificate No. 002057



www.jjmackay.com

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MKH 4000 SPECIFICATIONS



MKH 4500



MKH 4000



MKH 3500 TWIN



MKH 3000 TWIN



MKH 2500



MKH 2000



MKH 1000

Security Mechanism Housing: Precision Zamac die cast construction. Rugged, corrosion-resistant, non-brittle metal, rated at a minimum of 41,000 PSI. Proven resistance to the elements, tampering and abuse. The mechanism housing is a modern design, neat and free of rough surfaces or edges.

Housing Cap: An interlocked, hinged construction makes the cap integral with the mechanism housings, protecting the mechanism unit from dust, moisture, tampering and abuse. Hinged cap allows easy access to meter mechanism for servicing. The locking arrangement provides simultaneous and positive positioning of the mechanism unit. MacKay's housings are easily distinguished by the hex top.

Display Window: Large, clear, high-impact polycarbonate window displays the Liquid Crystal Display (LCD) of our electronic unit and provides excellent visibility. It is completely sealed for maximum element and dust protection.

Instruction Plates: Large, easy-to-read plates on the door and hours of enforcement cards in the cap contain simple operating instructions.

Ventilation: Strategically placed vents in dome cap ensure excellent visibility and reduced condensation both above and below mechanism level.

Enforcement Hours Card: To facilitate easy removal, in the event of a change in enforcement hours, a card slot is provided within the complete protection of the housing dome. Its position in the meter is clearly visible.

Coin Box Housing: Made of ductile iron. This extremely rugged material has a minimum tensile strength of 65,000 PSI. The design has been engineered to afford increased protection against vandalism, breakage and theft. Extra enhancements include a tapered base to inhibit the removal of the meter from its mounting pole by upward force.

Door: The lower vault door is made of ductile iron with a minimum tensile strength of 65,000 PSI. To minimise the risk of unauthorised entry, it is precision-machined to a tolerance of 0.005 inch and designed to withstand tampering by prying or hammering with ordinary hand tools. The door's internal coupling protects the hinges.

Collection Compartment: The collection compartment is secure against entry from the mechanism compartment. With the door open, the coin box is easily accessible. The vault is engineered for precise alignment to ensure trouble-free coin acceptance of most coins found in the world today, without need for modification.

Finish: The burr-free, raw casting is conversion-coated in a five-stage power spray pre-treatment system which includes cleaning, rinsing, zinc phosphate coating, rinsing again, and then sealing. The pre-treatment system is designed to remove grime and strengthens paint bonding. It also establishes a chemical coating on the surface which will slow corrosion in the case of paint damage. The conversion-coated castings are then electro-statically powder coated with high-quality paint. The castings are cured at predetermined temperatures for the appropriate time. Our castings have successfully passed the ASTM-BL 17 1000-hour salt spray resistance-to-corrosion test.

Locks: Multi-tumbler and highly pick-resistant. The security lock in the door is encased in tough ductile iron, with minimum exposed area, reducing its vulnerability to vandalism. Various types of security locks are available.

Materials: Full hard brass, stainless steel, aluminum stampings, Zamac and ductile iron castings and high-quality powder paint finish. All parts fabricated from steel are plated to industry standards.

Meter Post: Standard Requirements: 5.1cm (2 inch) inner diameter standard galvanised pipe. Small weep and air vent holes drilled to reduce condensation and prolong pipe life. These weep holes should be located approximately 30.5cm (12 inches) from the top and 30.5cm (12 inches) from the bottom on opposite sides from each other. Holes should be about 1.27cm (1/2 inch) in diameter.

Typical Installation: Pipe level minimum 90.9cm (35 1/2 inches) above walk. Parking meter height 43.6cm (17 1/2 inches). Overall meter height 134.6cm (53 inches). Contact your local Distributor or our Customer Service Department for information on the best method of installation for your location.

Warranty: J.J. MacKay Canada Limited guarantees, for a period of one year from the date of shipment, to repair or replace any of its housing parts determined to be defective in materials and/or workmanship, under normal use and service.

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