Municipality of Mt. Lebanon

2017 BEVERLY ROAD PARKING STUDY REPORT

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24 HOUR
METERED
PARKING
Jeep
COINS

INTRODUCTION

Overview

The Beverly Road Shops is a concentrated commercial district located in the northern portion of the Municipality of Mt. Lebanon, with stores, restaurants, and services lining a one-block stretch Beverly Road/U.S. Route 19. Comprising one of the municipality's two historic "downtowns" (the other being the Uptown district along Washington Road/U.S. Route 19 Bypass), the Beverly Road corridor is surrounded by one of the densest residential neighborhoods in the municipality.

The corridor has long served as a neighborhood business district and has continued to thrive. In light of this commercial district's continued vitality, the Municipality of Mt. Lebanon consulted with Environmental Planning & Design, LLC (EPD) to complete a parking analysis and plan that will accommodate this district's commercial, residential, and institutional parking needs. This study includes an evaluation of current parking demands, analysis of future demands, and recommendations for improving the experience of parking for local residents, business patrons, and employees alike.

As the Beverly Road corridor exists not in a vacuum but rather in the context of a large surrounding residential neighborhood, this report analyzes not only the public metered parking in the immediate business district but also the parking inventory on the residential side streets adjacent to the business district. These side streets, many of which see parking usage by residents, business district patrons, and employees alike, are thus an important part of the findings, analysis, and recommendations in this study.

Public parking in the business district is comprised of a municipal lot (Overlook Lot) of 48 metered spaces and 47 metered parallel and angled/head-in on-street spaces. As part of the Scope of Service, consultants from EPD conducted a parking audit over 7 days in the month of November 2016 to assess the turnover and occupancy patterns of these metered spaces. Since it was determined before the audit began that the surrounding residential streets and the spaces serving nearby Lincoln Elementary School would be important to include in the study as well, those areas were also a part of the audit. The audit was conducted by walking a circuit around the neighborhood each hour, with 12 different areas along the circuit where EPD staff would stop to hand-tally the number of spaces that were occupied and to observe the human interactions and reactions to the nature of parking within this area.

Analysis of this data included determining the approximate square footage of the various types of commercial uses found in the business district and modelling their parking requirements in comparison to observed usage. From this model, future projections of land use in the district could subsequently project future parking needs. This is particularly significant in light of the constrained physical space available for current and any proposed additional parking. Other analyses evaluated current parking restrictions and requirements in place, the utilization rates of certain parking areas with lower familiarity among users, and the use of parking areas by patrons and employees of the businesses in the Shops.

Finally, based on these analyses and the input of residents and business representatives at a series of public meetings, recommendations emerged to improve the experience of parking in the corridor and the surrounding residential neighborhood.

Study Area

The Beverly Road Shops business district extends along Beverly Road (U.S. 19) in northern Mt. Lebanon, from Overlook Drive (on the west) to Ralston Place (on the east). Beverly Road is a major thoroughfare in the South Hills suburbs of Pittsburgh, handling traffic originating from Downtown Pittsburgh and the Parkway West (Interstate 376) en route to Mt. Lebanon and points south.

As discussed in the Overview, the Study Area does not just encompass the one-block business district but extends further out to capture the business district's "sphere of influence." Thus, the Study Area is bounded by Colonial Drive and Arden Road to the north, Marlin Drive East to the west, McCully Street to the south, and North Meadowcroft Avenue and Ralston Place to the east. It includes land uses on both sides of the boundary streets, including numerous residences, Lincoln Elementary School, and Meadowcroft Park, with an overall usage of 215 parking spaces evaluated as part of this Study. Overall, 95 public metered parking spaces enforced by the Municipality are located in the Study Area, 48 of which are in the municipal lot on Overlook Drive and 47 of which are distributed as parallel and angled/head-in street parking on Beverly Road, Overlook Drive, and Ralston Place.

Purpose

The purpose of the Beverly Road Parking Study is to evaluate and analyze the current parking supply and usage patterns and the future parking needs of the Beverly Road commercial district and adjacent residential neighborhood, with the goal of arriving at recommendations that may be implemented to ensure the continued economic vitality of the business district.

Vision

The Beverly Road Parking Study envisions that the Beverly Road Shops business district and surrounding residential neighborhood enjoy an adequate supply and distribution of parking and an efficient pattern of turnover that meets current and future demands.

Goals

The goals of the Beverly Road Parking Study are to:

- Evaluate the existing inventory of parking spaces in the Beverly Road Shops business district and surrounding residential neighborhood
- Observe typical usage patterns in the district and adjacent neighborhood
- Identify peaks, valleys, overall capacity, and distribution of parking
- Evaluate current enforcement and permitting strategies for their effectiveness among business patrons, employees, and residents alike
- Project other corridor considerations to ensure the continued vitality and economic health of the district
- Develop recommendations and implementation strategies to address parking-related issues and to maximize efficiency in the district and neighborhood

Summary of Findings

In the undertaking of the Beverly Road Parking Study and particularly in the field work involving hourly walking/driving circuits for the counting of occupied spaces, EPD discovered the following:

- There is approximately 47,600 square feet of commercial space in the business district.
- During weekday daytime periods, the ratio of metered parking space demand is 2 spaces per 1,000 square feet of commercial space.
- During weekend daytime periods, the metered parking space demand ratio is 3.27 spaces per 1,000 square feet of commercial space.
- There are 156 unrestricted parking spaces available in metered and school zones during weekday and weekend evening periods (after 5 pm). With meters not enforced in the evening hours, the parking ratio is 8.91 spaces per 1,000 square feet of commercial space open for business during this time.
- The overwhelming majority (87%) of single-family and duplex housing units in the study area have private driveways and/or garages.
- Between 1/3 and 1/2 of the 75 apartment units (approximate) in the Study Area do not have private off-street parking.
- Dinnertime was observed to be the peak period of utilization for metered parking in the business district on both weekdays and Saturdays. Lunchtime was a secondary peak period.
- The Municipality's Overlook Lot saw peak occupancy of 100% on Friday and Saturday evenings in both the 7 and 8 pm hours. The lot was never completely filled at any other times observed.
- During midday on weekdays, approximately half of the cars parked in the Overlook Lot had permits displayed.
- The school parking areas **experienced** far less occupancy than the metered and residential parking areas, never exceeding 54% capacity.
- On weekdays, McCully Street and Akron Avenue **were** the most utilized of the four residential streets in the Study Area, in terms of percentage occupied.
- Overall parking occupancy never exceeded 77% over the seven days the field work count was conducted and averaged 52.6% occupancy.
- The highest rate of day lot permit usage was observed in the Tuesday afternoon hours, when up to 29% of the spaces in the municipal lot were occupied by Day permit holders. Similarly, the highest rate of overnight permit usage was observed on the first Sunday evening, when up to 23% of the spaces in the lot were occupied by Overnight permit holders.

METHODOLOGY AND DATA COLLECTION

Approach and Planning Process

The Municipality sought from the very beginning to heavily involve the public in this Study's planning process. A series of public meetings conducted over the course of the study period ensured opportunity for maximum participation from both business owners and residents.

Over the first two weeks of the project timeline, EPD coordinated with Municipality staff to establish work products and meeting timeframes. GIS base maps and the project study area were also established. Following kick-off coordination with the Municipality, EPD held five public meetings (on three separate days in late October, mid-November, and early December of 2016) to present findings and separately gather input from business owners and residents. Between the late October and mid-November meetings, field work was conducted, consisting of on-the-ground parking occupancy counts and observation to gain insight into typical usage patterns (occupancy peaks, length of parking stay, the presence of permits, etc.). The final public meeting in early December presented recommendations based on field work and feedback received from attendees at the mid-November meetings and allowed participants to select their favored recommendations.

Data Collection

Seven days of field work were completed over the first two weeks of November 2016, for a total of 76 hours. The field work consisted of parking counts and observation, which were conducted by walking a circuit around the neighborhood each hour, with 12 different areas along the circuit where stops were made to hand-tally the number of occupied spaces. During the weekend periods and on Friday evening, the circuit was driven to capture an even greater representation of occupancy turnover rates. Counts were conducted on the following days during the first and second weeks of November 2016: Tuesday (1), Wednesday (1), Thursday (1), Friday (1), Saturday (1), and Sunday (2), and took place between the hours of 7 am and 10 pm.

The spreadsheet template shown on the following page was used to tally the occupied parking spaces and instances of Overlook Lot permits.

Daily Log: Beverly Road Corridor Parking Analysis

Name:	Occupied Spaces by Hour												Parkers' Experience[1]			Notes
	1	2	3	4	5	6	7	8	9	10	11	12				
Date: / / 2016 Start time:	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	☺	😐	☹	
1 Ralston Pl angled parking																
2A Beverly Rd angled parking (north)																
2B Beverly Rd angled parking (south)																
3 Overlook Dr angled parking																
4 Colonial Dr residential parking																
5 Beverly Rd school employee lot[2]																
6 Ralston Pl school employee lot[2]																
7 Ralston Pl school drop-off zone[3]																
8 Ralston Pl residential parking																
9 McCully St residential parking																
10 Akron Ave residential parking																
11 Municipal parking lot																
24-Hour Lot Permits (24)																
Day Lot Permits (D)																
Overnight Lot Permits (N)																
All Other Vehicles																
12 Overlook Dr parallel parking																
TOTAL																

Key/Notes

[1] ☺ = no problems, backups, frustration, circling the block, waiting, etc.; 😐 = mostly smooth, with few problems, frustrations, etc.; ☹ = significant problems, backups, frustrations, inability to find parking, etc.

[2] Private/restricted parking Monday–Friday, 7am–5pm. Occupancy counts should only be conducted and listed above for hours *outside* of this time frame.

[3] Available parallel parking during non-school hours (unspecified, but probably 7am–5pm). Occupancy counts should only be conducted and listed above for hours *outside* of this time frame.

The order of the individual parking areas on the spreadsheet corresponded to the order of the areas along the walking/driving circuit, as depicted on the following map:

In the Overlook municipal lot, the presence of three different types of permits were observed and tallied: 24-Hour Permits, Day Permits, and Overnight Permits.

School parking areas were observed and tallied outside of school hours but were not part of the walking/driving circuit during school-restricted hours.

Raw data from the field work data collection was entered into a digital version of the tally spreadsheet, where occupancy percentages could be calculated for each of the various parking areas.

Public Meetings

On October 27, a brainstorming meeting was convened at Bado's Pizza Grill and Alehouse on Beverly Road for business owners, with a similar evening meeting for residents living in the neighborhood. This group of meetings allowed participants to share their concerns and viewpoints related to parking in the vicinity, from both a business owners' and residents' perspective. The concerns were written on flipboards during the meetings and at the conclusion of the meetings, the most common themes were revisited for further discussion.

The second group of public meetings, held on the morning and evening of November 10, again convened both business owners and residents at Bado's, to present the results of the field work conducted over the previous week-and-a-half. The spreadsheet used for the parking counts and accompanying raw data were presented, as well as a series of observations covering both the overall parking shed and the individual "zones" of metered parking, non-metered parking, and school parking areas. Also exhibited were line graphs showing the peaks and valleys of parking occupancy on both weekdays and weekends. As with the first group of public meetings, residents and business owners were able to voice their concerns and viewpoints about parking in the business district and surrounding neighborhood.

The final public meeting, held on the evening of December 8, was open to both business representatives and residents and presented ten recommendation scenarios for participants at the meeting to consider. The scenarios sought to address a diverse range of concerns and were arrived at through analysis of the data gathered from field work and the input from participants at the previous meetings. At the end of the meeting, participants were free to walk around and place colored dots on their three most favored scenarios. After that exercise, a graphic was displayed on the screen overlaying the scenarios receiving greatest preference, for the ultimate solution.

EXISTING CONDITIONS AND DATA FINDINGS

Existing Inventory and Demand

A total of 27 businesses are located in the Beverly Road Shops business district. The district features 95 total metered parking spaces managed by the Mt. Lebanon Parking Department. This count of 95 is comprised of a municipal lot (Overlook Lot) of 48 metered spaces and 47 metered parallel and angled/head-in on-street spaces.

All of the metered spaces are delineated by white painted lines. Beverly Road's metered inventory consists of 14 angled/head-in spaces on the north side of the street and 21 angled/head-in spaces on the south side of the street. Overlook Drive consists of two areas of metered parking, with 4 spaces of angled/head-in parking on the north side of the intersection with Beverly Road and 3 spaces of parallel parking on the south side of the intersection. Finally, 9 spaces of angled/head-in spaces along Ralston Place are located just south of its intersection with Beverly Road.

An additional two parking lots in the Study Area are unmetered and serve the faculty and staff of Lincoln Elementary School during the school day (7 am to 5 pm). The estimated number of parking spaces in the two school lots, located on Beverly Road and Ralston Place, is 35 and 13, respectively.

Unmetered street parking in the Study Area is not delineated by painted separator lines, so the number of unmetered on-street spaces was estimated for the purposes of this study, based on standard parking space lengths, driveway spacings/curb cuts, and fire hydrant locations. One set of unmetered on-street spaces is located along Ralston Place in the loading/drop-off zone for Lincoln Elementary School, which is open for public parking during non-school hours and lined with yellow curb paint. All of the other unmetered on-street spaces included as part of the study's walking and driving circuit are in front of residences, located along Akron Avenue, Colonial Drive, McCully Street, and Ralston Place. The estimated number of on-street spaces along Ralston in the school drop-off zone is 13. The total parking volume in front of residences along the walking/driving circuit was estimated to be 59 spaces, with 15 along Akron, 21 along Colonial, 14 along McCully, and 9 along Ralston.

Within the corridor, 95 public metered parking spaces serve the parking needs of 25 businesses. Two additional businesses in the corridor have private on-site parking areas. Eight of the 27 total businesses in the corridor are foodservice businesses (restaurants, cafes, and bakeries), with the remainder consisting of professional services (retail banking, salon, dry cleaner, exercise studios, optometrist, dentist, etc.), retail (hardware store, gift shop, flower shop, etc.), and a small amount of office space. Four of the commercial buildings in the corridor are home to separate tenants on the ground and second floors.

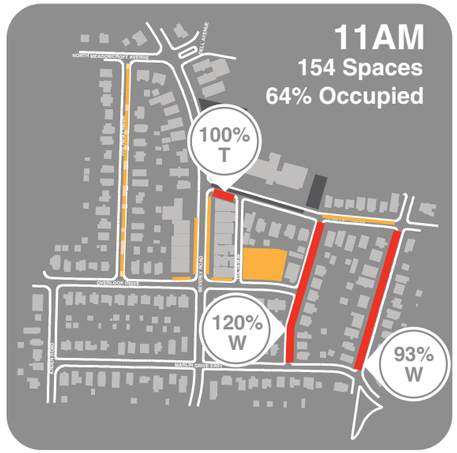
Residences surrounding the corridor consist primarily of single-family homes and duplexes, the vast majority of which are served by private driveways. Just as in the rest of Mt. Lebanon, however, a significant presence of multifamily buildings also exists. The majority of these multifamily structures are located along Beverly Road and Overlook Drive, with others on McCully Street and Ralston Place. All of these have limited on-site private parking.

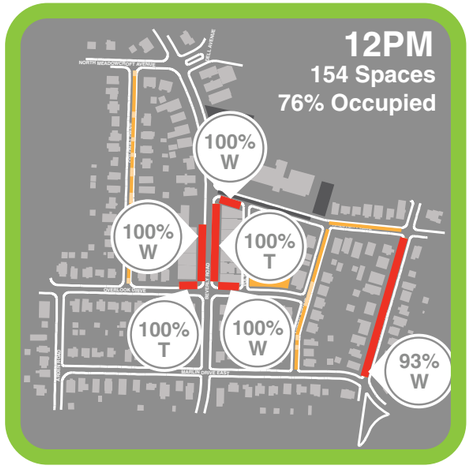
The following graphic shows the location and distribution of all of the parking spaces in the Study Area.

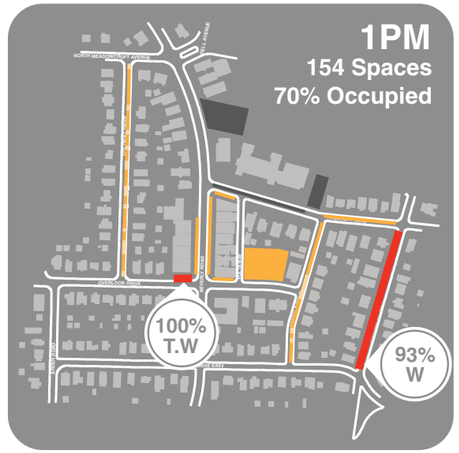
Data Findings

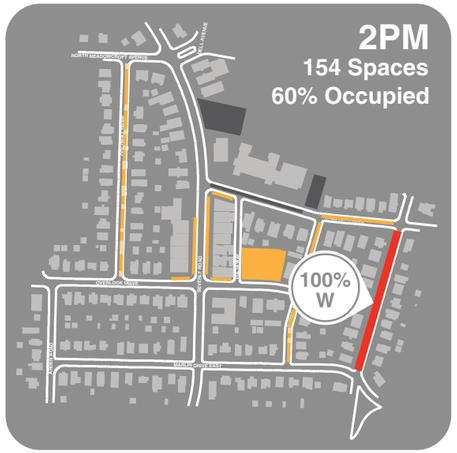
The next two pages (foldouts) show a visual summary of the number of available parking spaces, the occupancy percentages per hour, and the peak hours on both weekdays and Saturday.

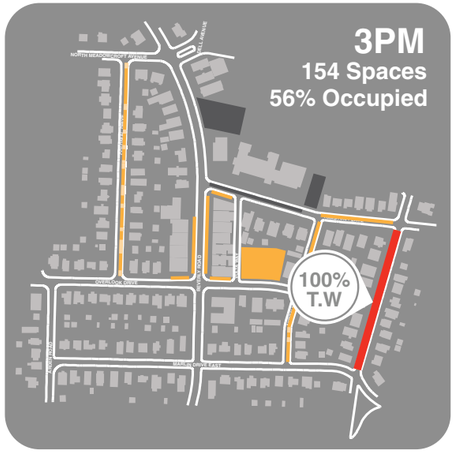
Following this visual summary are a series of tally sheets showing the count data gathered over the seven days of field work. Cells highlighted in light pink indicate that the specific parking area was at an occupancy level of 80% or greater during that hour. On the charts for Tuesday, Wednesday, and Thursday, the cells shaded in black with a red outline indicate that the weekday peak (for all of the weekdays in aggregate, not only for that specific weekday) had been observed during that hour. On the Friday and Saturday charts, the black shade with red outline indicates a peak observed for Friday night and Saturday. On the Sunday charts, the same shade indicates a peak observed over the two Sundays.

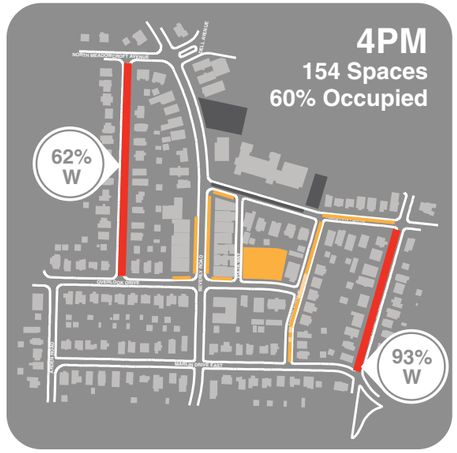


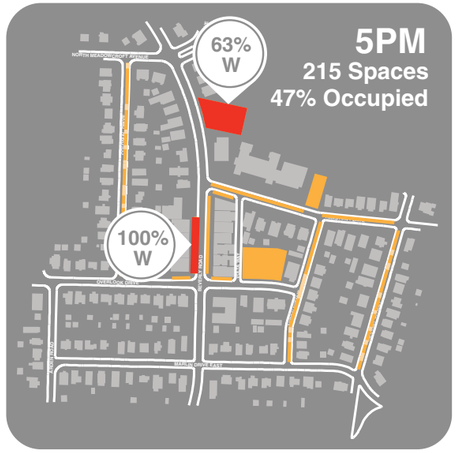


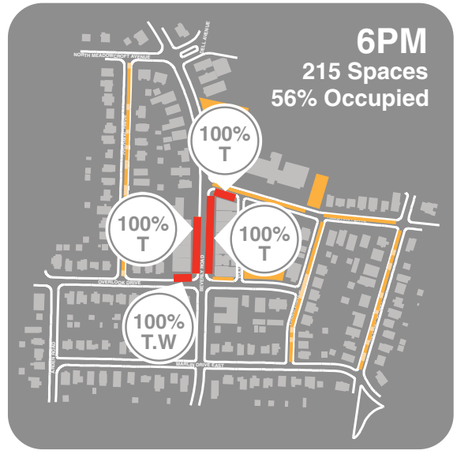


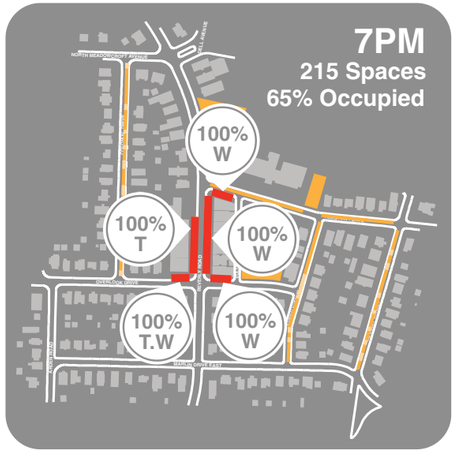


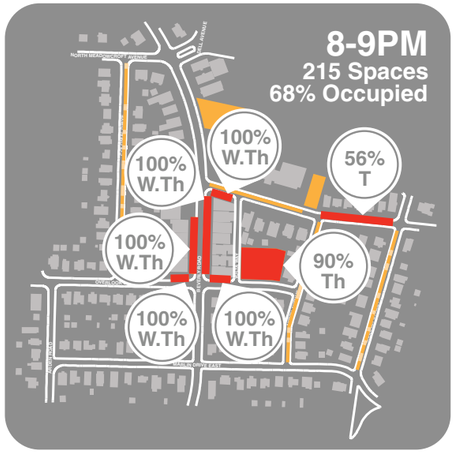


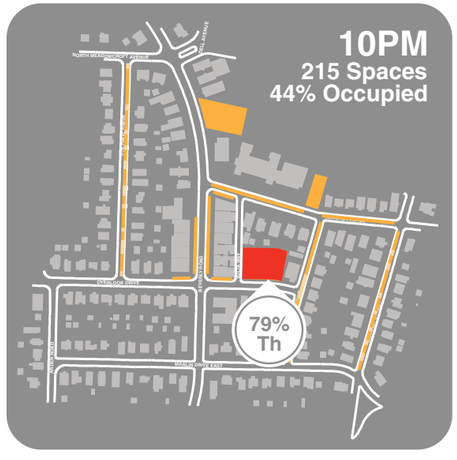












LEGEND

- Most Occupied Parking Spaces
- Less Occupied Parking Spaces
- Not Available Parking Spaces
- Peak Parking Hour

DRAFT
WEEKDAY PARKING ACTIVITY ANALYSIS

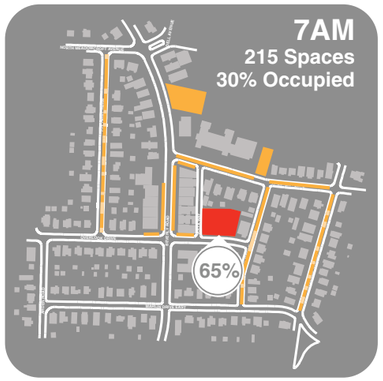
BEVERLY ROAD PARKING STUDY

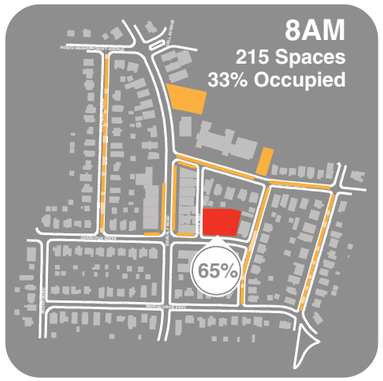
Prepared for: Municipality of Mt. Lebanon
Prepared by: Environmental Planning and Design LLC

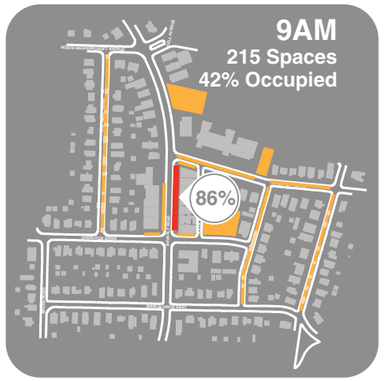
November 10, 2016
2174.16.01

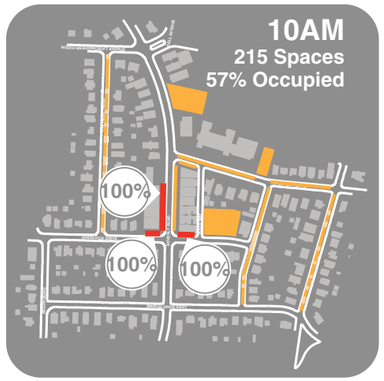
0 80 160 Feet

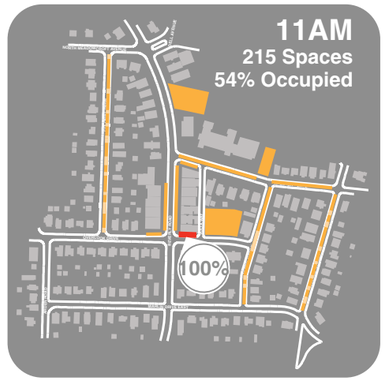
NORTH

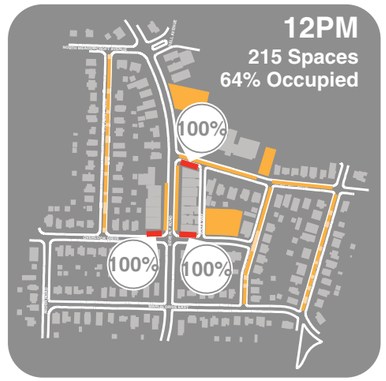


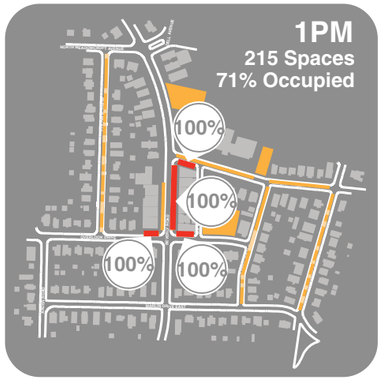


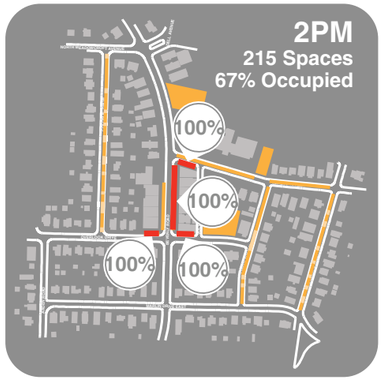


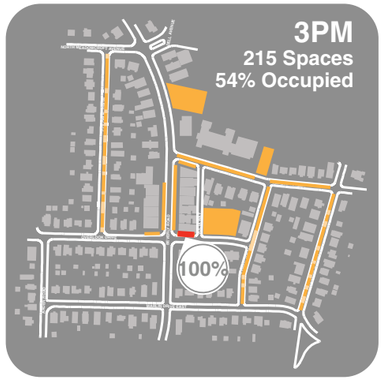


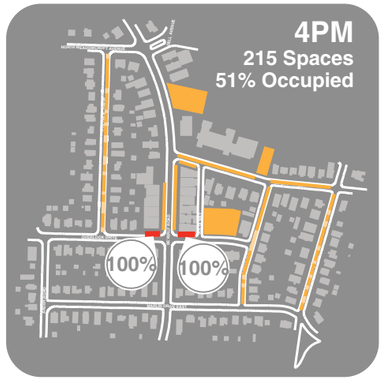


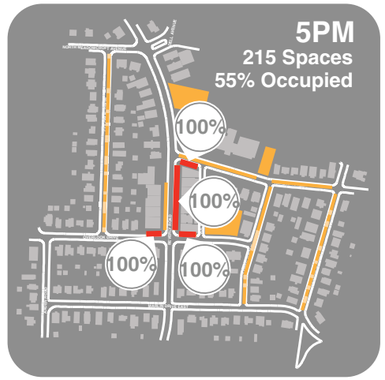


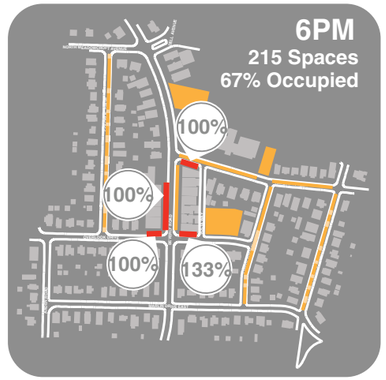


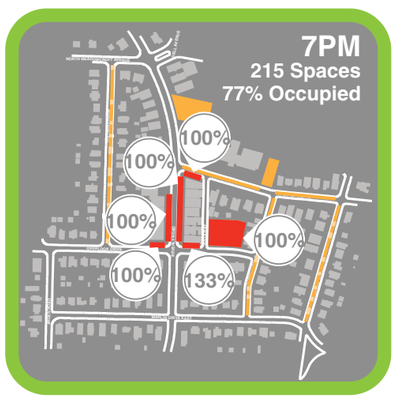


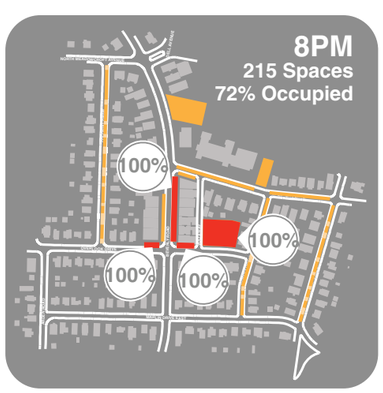


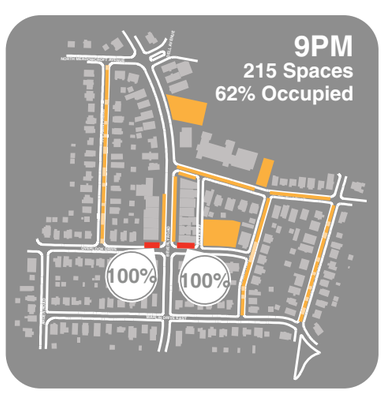


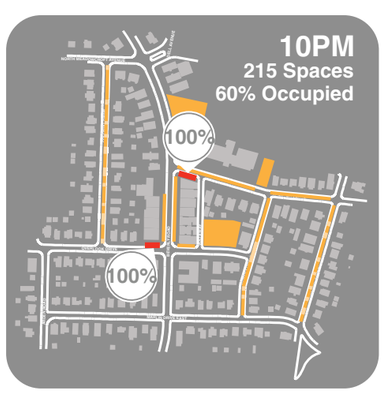












✻ Friday night occupancy percentages parallel those of Saturday night

LEGEND

- Most Occupied Parking Spaces
- Less Occupied Parking Spaces
- Peak Parking Hour

DRAFT
SATURDAY PARKING ACTIVITY ANALYSIS

BEVERLY ROAD PARKING STUDY

Prepared for: Municipality of Mt. Lebanon
Prepared by: Environmental Planning and Design LLC

November 10, 2016
2174.16.01

0 80 160 Feet

NORTH

Tuesday: Occupied Spaces by Hour

Date: Tues 11/1/2016	Start time: 7 AM PM	8 AM PM	9 AM PM	10 AM PM	11 AM PM	12 AM PM	1 AM PM	2 AM PM	3 AM PM	4 AM PM	5 AM PM	6 AM PM	7 AM PM	8 AM PM	9 AM PM	10 AM PM
1 Ralston Pl angled parking	5				5	4	4	3	1	2	2	4	4	3		
2A Beverly Rd angled parking (north)	8				13	11	8	9	8	5	8	12	14	9		
2B Beverly Rd angled parking (south)	5				12	21	18	16	17	14	9	20	19	18		
3 Overlook Dr angled parking	0				2	3	4	2	1	1	0	4	4	3		
4 Colonial Dr residential parking	3				8	10	7	4	4	6	6	9	11	6		
5 Beverly Rd school employee lot											19	11	15	10		
6 Ralston Pl school employee lot											9	9	5	4		
7 Ralston Pl school drop-off zone											0	0	2	1		
8 Ralston Pl residential parking	0				2	3	2	2	2	3	2	4	4	5		
9 McCully St residential parking	1				10	13	12	13	14	13	12	11	8	7		
10 Akron Ave residential parking	4				13	12	12	12	10	4	6	7	5	4		
11 Municipal parking lot	18				31	34	31	29	28	25	24	27	30	23		
24-Hour Lot Permits (24)	7				3	3	1	1	1	4	5	5	5	5		
Day Lot Permits (D)	3				9	12	14	13	14	10	5	4	0	0		
Overnight Lot Permits (N)	3				2	0	0	0	1	5	4	4	4	5		
All Other Vehicles	5				17	19	16	15	12	6	10	14	21	13		
12 Overlook Dr parallel parking	1				2	2	1	2	1	0	1	2	2	1		
Metered Parking Total	37				65	75	66	61	56	47	44	69	73	57		
Muni Lot Non-Daytime Permit Total	10				5	3	1	1	2	9	9	9	9	10		
All Other Municipal Lot Parkers	8				26	31	30	28	26	16	15	18	21	13		
School Parking Total											28	20	22	15		
Residential Parking Total	8				33	38	33	31	30	26	26	31	28	22		
TOTAL	**45**				**98**	**113**	**99**	**92**	**86**	**73**	**98**	**120**	**123**	**94**		

Weekday peak hour(s)

>80% utilization

Tuesday: Occupancy Percentage by Hour

Date: Tues 11/1/2016	Start time: 7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM
1 Ralston Pl angled parking	100%				100%	80%	80%	60%	20%	40%	40%	80%	80%	60%		
2A Beverly Rd angled parking (north)	57%				93%	79%	57%	64%	57%	36%	57%	86%	100%	64%		
2B Beverly Rd angled parking (south)	24%				57%	100%	86%	76%	81%	67%	43%	95%	90%	86%		
3 Overlook Dr angled parking	0%				50%	75%	100%	50%	25%	25%	0%	100%	100%	75%		
4 Colonial Dr residential parking	14%				38%	48%	33%	19%	19%	29%	29%	43%	52%	29%		
5 Beverly Rd school employee lot											54%	31%	43%	29%		
6 Ralston Pl school employee lot											69%	69%	38%	31%		
7 Ralston Pl school drop-off zone											0%	0%	15%	8%		
8 Ralston Pl residential parking	0%				22%	33%	22%	22%	22%	33%	22%	44%	44%	56%		
9 McCully St residential parking	7%				71%	93%	86%	93%	100%	93%	86%	79%	57%	50%		
10 Akron Ave residential parking	27%				87%	80%	80%	80%	67%	27%	40%	47%	33%	27%		
11 Municipal parking lot	38%				65%	71%	65%	60%	58%	52%	50%	56%	63%	48%		
24-Hour Lot Permits (24)																
Day Lot Permits (D)																
Overnight Lot Permits (N)																
All Other Vehicles																
12 Overlook Dr parallel parking	33%				67%	67%	33%	67%	33%	0%	33%	67%	67%	33%		
Metered Parking Total	39%				68%	79%	69%	64%	59%	49%	46%	73%	77%	60%		
Muni Lot Non-Daytime Permit Total	56%				16%	9%	3%	3%	7%	36%	38%	33%	30%	43%		
All Other Municipal Lot Parkers	44%				84%	91%	97%	97%	93%	64%	63%	67%	70%	57%		
School Parking Total											46%	33%	36%	25%		
Residential Parking Total	14%				56%	64%	56%	53%	51%	44%	44%	53%	47%	37%		
TOTAL	**29%**				**64%**	**73%**	**64%**	**60%**	**56%**	**47%**	**34%**	**46%**	**56%**	**57%**		

Weekday peak hour(s)

>80% utilization

Wednesday: Occupied Spaces by Hour

Date: Wed 11/2/2016	Start time: 7 AM PM	8 AM PM	9 AM PM	10 AM PM	11 AM PM	12 AM PM	1 AM PM	2 AM PM	3 AM PM	4 AM PM	5 AM PM	6 AM PM	7 AM PM	8 AM PM	9 AM PM	10 AM PM
1 Ralston Pl angled parking	3				2	5	3	3	0	3	1	5	5	5		
2A Beverly Rd angled parking (north)	12				7	14	9	9	9	12	14	14	13	14		
2B Beverly Rd angled parking (south)	5				10	20	20	12	13	14	10	21	21	21		
3 Overlook Dr angled parking	2				2	4	4	1	2	1	1	4	4	4		
4 Colonial Dr residential parking	4				12	10	10	9	11	13	11	9	10	11		
5 Beverly Rd school employee lot	30										22	16	14	12		
6 Ralston Pl school employee lot	2										4	7	6	5		
7 Ralston Pl school drop-off zone	11										0	0	5	4		
8 Ralston Pl residential parking	0				4	4	3	4	4	3	4	3	5	4		
9 McCully St residential parking	2				13	13	13	14	14	13	10	5	7	7		
10 Akron Ave residential parking	1				18	13	11	10	10	3	2	2	4	4		
11 Municipal parking lot	15				28	31	25	22	22	29	21	33	42	37		
24-Hour Lot Permits (24)	5				3	3	3	3	3	5	7	7	7	7		
Day Lot Permits (D)	1				9	8	7	5	5	9	1	0	0	0		
Overnight Lot Permits (N)	6				0	0	0	1	1	5	4	4	3	3		
All Other Vehicles	3				16	20	15	13	13	10	9	22	32	27		
12 Overlook Dr parallel parking	2				1	3	2	1	1	2	2	1	3	3		
Metered Parking Total	39				50	77	63	48	47	61	49	78	88	84		
Muni Lot Non-Daytime Permit Total	11				3	3	3	4	4	10	11	11	10	10		
All Other Municipal Lot Parkers	4				25	28	22	18	18	19	10	22	32	27		
School Parking Total											26	23	25	21		
Residential Parking Total	7				47	40	37	37	39	32	27	19	26	26		
TOTAL	**46**				**97**	**117**	**100**	**85**	**86**	**93**	**102**	**120**	**139**	**131**		

Weekday peak hour(s)

>80% utilization

Wednesday: Occupancy Percentage by Hour

Date: Wed 11/2/2016	Start time: 7 AM PM	8 AM PM	9 AM PM	10 AM PM	11 AM PM	12 AM PM	1 AM PM	2 AM PM	3 AM PM	4 AM PM	5 AM PM	6 AM PM	7 AM PM	8 AM PM	9 AM PM	10 AM PM
1 **Ralston Pl** angled parking	60%				40%	100%	60%	60%	0%	60%	20%	100%	100%	100%		
2A **Beverly Rd** angled parking (north)	86%				50%	100%	64%	64%	64%	86%	100%	100%	93%	100%		
2B **Beverly Rd** angled parking (south)	24%				48%	95%	95%	57%	62%	67%	48%	100%	100%	100%		
3 **Overlook Dr** angled parking	50%				50%	100%	100%	25%	50%	25%	25%	100%	100%	100%		
4 **Colonial Dr** residential parking	19%				57%	48%	48%	43%	52%	62%	52%	43%	48%	52%		
5 **Beverly Rd school employee lot**											63%	46%	40%	34%		
6 **Ralston Pl school employee lot**											31%	54%	46%	38%		
7 **Ralston Pl school drop-off zone**											0%	0%	38%	31%		
8 **Ralston Pl** residential parking	0%				44%	44%	33%	44%	44%	33%	44%	33%	56%	44%		
9 **McCully St** residential parking	14%				93%	93%	93%	100%	100%	93%	71%	36%	50%	50%		
10 **Akron Ave** residential parking	7%				120%	87%	73%	67%	67%	20%	13%	13%	27%	27%		
11 **Municipal parking lot**	31%				58%	65%	52%	46%	46%	60%	44%	69%	88%	77%		
24-Hour Lot Permits (24)																
Day Lot Permits (D)																
Overnight Lot Permits (N)																
All Other Vehicles																
12 **Overlook Dr** parallel parking	67%				33%	100%	67%	33%	33%	67%	67%	33%	100%	100%		
Metered Parking Total	41%				53%	81%	66%	51%	49%	64%	52%	82%	93%	88%		
Muni Lot Non-Daytime Permit Total	73%				11%	10%	12%	18%	18%	34%	52%	33%	24%	27%		
All Other Municipal Lot Parkers	27%				89%	90%	88%	82%	82%	66%	48%	67%	76%	73%		
School Parking Total											43%	38%	41%	34%		
Residential Parking Total	12%				80%	68%	63%	63%	66%	54%	46%	32%	44%	44%		
TOTAL	**30%**				**63%**	**76%**	**65%**	**55%**	**56%**	**60%**	**47%**	**56%**	**65%**	**61%**		

Weekday peak hour(s)

>80% utilization

Thursday: Occupied Spaces by Hour

Date: Thurs 11/3/2016	Start time: 7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM
1 Ralston Pl angled parking	4				1	5	5	2	5	2				5		2
2A Beverly Rd angled parking (north)	9				11	14	14	12	14	9				14		4
2B Beverly Rd angled parking (south)	6				19	20	20	17	18	8				21		10
3 Overlook Dr angled parking	1				3	4	4	2	3	1				4		1
4 Colonial Dr residential parking	3				9	11	10	9	9	5				11		6
5 Beverly Rd school employee lot														14		12
6 Ralston Pl school employee lot														7		6
7 Ralston Pl school drop-off zone														8		6
8 Ralston Pl residential parking	0				3	1	2	2	8	2				3		1
9 McCully St residential parking	2				8	7	8	10	9	8				10		7
10 Akron Ave residential parking	4				13	11	12	11	13	14				3		2
11 Municipal parking lot	16				25	31	25	27	29	24				43		38
24-Hour Lot Permits (24)	7				6	7	7	6	7	5				7		7
Day Lot Permits (D)	3				8	6	6	8	8	8				0		0
Overnight Lot Permits (N)	4				3	2	2	2	4	3				4		4
All Other Vehicles	2				8	16	10	11	10	8				32		27
12 Overlook Dr parallel parking	1				3	3	2	1	2	1				3		0
Metered Parking Total	37				62	77	70	61	71	45				90		55
Muni Lot Non-Daytime Permit Total	11				9	9	9	8	11	8				11		
All Other Municipal Lot Parkers	5				16	22	16	19	18	16				32		
School Parking Total														29		24
Residential Parking Total	9				33	30	32	32	39	29				27		16
TOTAL	**46**				**95**	**107**	**102**	**93**	**110**	**74**				**146**		**95**

Weekday peak hour(s)

>80% utilization

Thursday Occupancy Percentage: Beverly Road Corridor Parking Analysis

Date: Thurs 11/3/2016	Start time:	7 AM PM	8 AM PM	9 AM PM	10 AM PM	11 AM PM	12 AM PM	1 AM PM	2 AM PM	3 AM PM	4 AM PM	5 AM PM	6 AM PM	7 AM PM	8 AM PM	9 AM PM	10 AM PM
1 Ralston Pl angled parking		80%				20%	100%	100%	40%	100%	40%				100%		40%
2A Beverly Rd angled parking (north)		64%				79%	100%	100%	86%	100%	64%				100%		29%
2B Beverly Rd angled parking (south)		29%				90%	95%	95%	81%	86%	38%				100%		48%
3 Overlook Dr angled parking		25%				75%	100%	100%	50%	75%	25%				100%		25%
4 Colonial Dr residential parking		14%				43%	52%	48%	43%	43%	24%				52%		29%
5 Beverly Rd school employee lot															40%		34%
6 Ralston Pl school employee lot															54%		46%
7 Ralston Pl school drop-off zone															62%		46%
8 Ralston Pl residential parking		0%				33%	11%	22%	22%	89%	22%				33%		11%
9 McCully St residential parking		14%				57%	50%	57%	71%	64%	57%				71%		50%
10 Akron Ave residential parking		27%				87%	73%	80%	73%	87%	93%				20%		13%
11 Municipal parking lot		33%				52%	65%	52%	56%	60%	50%				90%		79%
24-Hour Lot Permits (24)																	
Day Lot Permits (D)																	
Overnight Lot Permits (N)																	
All Other Vehicles																	
12 Overlook Dr parallel parking		33%				100%	100%	67%	33%	67%	33%				100%		0%
Metered Parking Total		39%				65%	81%	74%	64%	75%	47%				95%		58%
Muni Lot Non-Daytime Permit Total		69%				36%	29%	36%	30%	38%	33%				26%		
All Other Municipal Lot Parkers		31%				64%	71%	64%	70%	62%	67%				74%		
School Parking Total															48%		39%
Residential Parking Total		15%				56%	51%	54%	54%	66%	49%				46%		27%
TOTAL		**30%**				**62%**	**69%**	**66%**	**60%**	**71%**	**48%**				**68%**		**44%**

Weekday peak hour(s)

>80% utilization

Friday: Occupied Spaces by Hour

Date: Fri 11/4/2016	Start time: 7 AM PM	8 AM PM	9 AM PM	10 AM PM	11 AM PM	12 AM PM	1 AM PM	2 AM PM	3 AM PM	4 AM PM	5 AM PM	6 AM PM	7 AM PM	8 AM PM	9 AM PM	10 AM PM
1 **Ralston Pl** angled parking	4												5	4	4	0
2A **Beverly Rd** angled parking (north)	9												14	14	9	7
2B **Beverly Rd** angled parking (south)	3												21	19	20	13
3 **Overlook Dr** angled parking	1												4	4	4	4
4 **Colonial Dr** residential parking	4												18	17	12	8
5 **Beverly Rd school employee lot**													14	15	15	18
6 **Ralston Pl school employee lot**													7	8	8	7
7 **Ralston Pl school drop-off zone**													8	9	9	2
8 **Ralston Pl** residential parking	0												2	3	3	3
9 **McCully St** residential parking	5												7	7	7	5
10 **Akron Ave** residential parking	0												12	15	15	13
11 **Municipal parking lot**	15												48	48	38	31
24-Hour Lot Permits (24)	5												2	2	2	2
Day Lot Permits (D)	4												0	0	0	0
Overnight Lot Permits (N)	3												5	5	5	5
All Other Vehicles	3												41	41	31	24
12 **Overlook Dr** parallel parking	2												3	2	1	0
Metered Parking Total	34												95	91	76	55
Muni Lot Non-Daytime Permit Total	8												7	7	7	7
All Other Municipal Lot Parkers	7												41	41	31	24
School Parking Total													29	32	32	27
Residential Parking Total	9												39	42	37	29
TOTAL	**43**												**163**	**165**	**145**	**111**

Fri night/Sat peak hour(s)

>80% utilization

Friday: Occupancy Percentage by Hour

Date: Fri 11/4/2016	Start time: 7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM
1 **Ralston Pl** angled parking	80%												100%	80%	80%	0%
2A **Beverly Rd** angled parking (north)	64%												100%	100%	64%	50%
2B **Beverly Rd** angled parking (south)	14%												100%	90%	95%	62%
3 **Overlook Dr** angled parking	25%												100%	100%	100%	100%
4 **Colonial Dr** residential parking	19%												86%	81%	57%	38%
5 **Beverly Rd school employee lot**	0%												40%	43%	43%	51%
6 **Ralston Pl school employee lot**	0%												54%	62%	62%	54%
7 **Ralston Pl school drop-off zone**	0%												62%	69%	69%	15%
8 **Ralston Pl** residential parking													22%	33%	33%	33%
9 **McCully St** residential parking													50%	50%	50%	36%
10 **Akron Ave** residential parking													80%	100%	100%	87%
11 **Municipal parking lot**	31%												100%	100%	79%	65%
24-Hour Lot Permits (24)																
Day Lot Permits (D)																
Overnight Lot Permits (N)																
All Other Vehicles																
12 **Overlook Dr** parallel parking	67%												100%	67%	33%	0%
Metered Parking Total	36%												100%	96%	80%	58%
Muni Lot Non-Daytime Permit Total	53%												15%	15%	18%	23%
All Other Municipal Lot Parkers	47%												85%	85%	82%	77%
School Parking Total													48%	52%	52%	44%
Residential Parking Total	15%												66%	71%	63%	49%
TOTAL	**28%**												**76%**	**77%**	**67%**	**52%**

Fri night/Sat peak hour(s)

>80% utilization

Saturday: Occupied Spaces by Hour

Date: Sat 11/5/2016	Start time:	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM
1 Ralston Pl angled parking		1	2	3	4	4	5	5	5	4	2	5	5	5	4	4	5
2A Beverly Rd angled parking (north)		0	0	1	14	9	13	13	13	5	9	13	14	14	13	11	10
2B Beverly Rd angled parking (south)		2	6	18	19	19	20	21	21	17	16	21	20	21	21	19	20
3 Overlook Dr angled parking		2	1	3	4	3	4	4	4	3	4	4	4	4	4	4	4
4 Colonial Dr residential parking		2	2	2	8	7	13	18	15	13	8	10	17	15	16	10	9
5 Beverly Rd school employee lot		11	11	12	10	8	10	12	10	11	11	8	9	11	9	10	10
6 Ralston Pl school employee lot		6	6	6	4	4	4	5	4	4	1	3	7	10	7	5	7
7 Ralston Pl school drop-off zone		0	0	0	0	1	3	7	7	4	3	4	5	12	8	6	6
8 Ralston Pl residential parking		0	0	0	1	1	1	4	5	5	5	4	2	3	3	1	0
9 McCully St residential parking		3	3	3	6	7	4	3	4	7	4	5	5	6	6	7	7
10 Akron Ave residential parking		6	7	7	13	12	13	14	13	11	6	6	7	13	13	9	8
11 Municipal parking lot		31	31	34	37	38	45	44	41	29	37	33	46	48	48	45	41
24-Hour Lot Permits (24)		5	5	5	4	1	2	2	4	3	3	2	3	3	5	5	5
Day Lot Permits (D)		0	0	0	0	4	3	3	2	1	0	0	0	0	0	0	0
Overnight Lot Permits (N)		4	4	4	4	4	3	3	3	3	5	3	3	3	4	4	4
All Other Vehicles		22	22	25	29	29	37	36	32	22	29	28	40	42	39	36	32
12 Overlook Dr parallel parking		1	1	2	3	3	3	3	3	3	3	3	4	4	3	3	2
Metered Parking Total		37	41	61	81	76	90	90	87	61	71	79	93	96	93	86	82
Muni Lot Non-Daytime Permit Total		9	9	9	8	5	5	5	7	6	8	5	6	6	9	9	9
All Other Municipal Lot Parkers		22	22	25	29	33	40	39	34	23	29	28	40	42	39	36	32
School Parking Total		17	17	18	14	13	17	24	21	19	15	15	21	33	24	21	23
Residential Parking Total		11	12	12	28	27	31	39	37	36	23	25	31	37	38	27	24
TOTAL		**65**	**70**	**91**	**123**	**116**	**138**	**153**	**145**	**116**	**109**	**119**	**145**	**166**	**155**	**134**	**129**

Fri night/Sat peak hour(s)

>80% utilization

Saturday: Occupancy Percentage by Hour

Date: Sat 11/5/2016	Start time:	7 AM/PM	8 AM/PM	9 AM/PM	10 AM/PM	11 AM/PM	12 AM/PM	1 AM/PM	2 AM/PM	3 AM/PM	4 AM/PM	5 AM/PM	6 AM/PM	7 AM/PM	8 AM/PM	9 AM/PM	10 AM/PM
1 **Ralston Pl** angled parking		20%	40%	60%	80%	80%	100%	100%	100%	80%	40%	100%	100%	100%	80%	80%	100%
2A **Beverly Rd** angled parking (north)		0%	0%	7%	100%	64%	93%	93%	93%	36%	64%	93%	100%	100%	93%	79%	71%
2B **Beverly Rd** angled parking (south)		10%	29%	86%	90%	90%	95%	100%	100%	81%	76%	100%	95%	100%	100%	90%	95%
3 **Overlook Dr** angled parking		50%	25%	75%	100%	75%	100%	100%	100%	75%	100%	100%	100%	100%	100%	100%	100%
4 **Colonial Dr** residential parking		10%	10%	10%	38%	33%	62%	86%	71%	62%	38%	48%	81%	71%	76%	48%	43%
5 **Beverly Rd school employee lot**		31%	31%	34%	29%	23%	29%	34%	29%	31%	31%	23%	26%	31%	26%	29%	29%
6 **Ralston Pl school employee lot**		46%	46%	46%	31%	31%	31%	38%	31%	31%	8%	23%	54%	77%	54%	38%	54%
7 **Ralston Pl school drop-off zone**		0%	0%	0%	0%	8%	23%	54%	54%	31%	23%	31%	38%	92%	62%	46%	46%
8 **Ralston Pl** residential parking		0%	0%	0%	11%	11%	11%	44%	56%	56%	56%	44%	22%	33%	33%	11%	0%
9 **McCully St** residential parking		21%	21%	21%	43%	50%	29%	21%	29%	50%	29%	36%	36%	43%	43%	50%	50%
10 **Akron Ave** residential parking		40%	47%	47%	87%	80%	87%	93%	87%	73%	40%	40%	47%	87%	87%	60%	53%
11 **Municipal parking lot**		65%	65%	71%	77%	79%	94%	92%	85%	60%	77%	69%	96%	100%	100%	94%	85%
24-Hour Lot Permits (24)																	
Day Lot Permits (D)																	
Overnight Lot Permits (N)																	
All Other Vehicles																	
12 **Overlook Dr** parallel parking		33%	33%	67%	100%	100%	100%	100%	100%	100%	100%	100%	133%	133%	100%	100%	67%
Metered Parking Total		39%	43%	64%	85%	80%	95%	95%	92%	64%	75%	83%	98%	101%	98%	91%	86%
Muni Lot Non-Daytime Permit Total		29%	29%	26%	22%	13%	11%	11%	17%	21%	22%	15%	13%	13%	19%	20%	22%
All Other Municipal Lot Parkers		71%	71%	74%	78%	87%	89%	89%	83%	79%	78%	85%	87%	88%	81%	80%	78%
School Parking Total		28%	28%	30%	23%	21%	28%	39%	34%	31%	25%	25%	34%	54%	39%	34%	38%
Residential Parking Total		19%	20%	20%	47%	46%	53%	66%	63%	61%	39%	42%	53%	63%	64%	46%	41%
TOTAL		**30%**	**33%**	**42%**	**57%**	**54%**	**64%**	**71%**	**67%**	**54%**	**51%**	**55%**	**67%**	**77%**	**72%**	**62%**	**60%**

Fri night/Sat peak hour(s)

Hours of 80% utilization

Sunday A: Occupied Spaces by Hour

Date: Sun 11/6/2016	Start time: 7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM
1 Ralston Pl angled parking	0	1	1	1	2	1	2	3	3	2	3	3	3	2		
2A Beverly Rd angled parking (north)	3	7	13	11	10	9	13	7	6	5	8	12	10	8		
2B Beverly Rd angled parking (south)	6	5	19	14	15	13	17	13	13	13	16	20	18	16		
3 Overlook Dr angled parking	0	0	3	4	4	0	4	2	1	1	3	3	2	2		
4 Colonial Dr residential parking	1	1	5	7	9	12	12	15	9	10	10	3	8	7		
5 Beverly Rd school employee lot	12	12	13	10	8	11	13	10	11	13	12	12	12	10		
6 Ralston Pl school employee lot	7	6	5	5	3	3	3	4	4	6	7	4	4	4		
7 Ralston Pl school drop-off zone	0	0	1	1	2	3	3	3	4	4	2	1	1	2		
8 Ralston Pl residential parking	1	1	3	2	4	4	4	3	4	5	4	1	1	1		
9 McCully St residential parking	3	4	4	4	5	4	4	5	3	4	2	2	2	2		
10 Akron Ave residential parking	5	5	7	7	4	5	4	3	2	1	2	1	1	1		
11 Municipal parking lot	17	17	24	19	22	22	24	20	23	27	27	26	26	27		
24-Hour Lot Permits (24)	5	4	5	4	3	3	4	6	7	7	7	7	7	7		
Day Lot Permits (D)	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Overnight Lot Permits (N)	6	6	6	5	4	4	4	2	3	4	6	10	10	11		
All Other Vehicles	6	7	13	10	15	15	16	12	13	16	14	9	9	9		
12 Overlook Dr parallel parking	1	3	3	2	2	0	0	0	0	0	1	2	2	1		
Metered Parking Total	27	33	63	51	55	45	60	45	46	48	58	66	61	56		
Muni Lot Non-Daytime Permit Total	11	10	11	9	7	7	8	8	10	11	13	17	17	18		
All Other Municipal Lot Parkers	6	7	13	10	15	15	16	12	13	16	14	9	9	9		
School Parking Total	19	18	19	16	13	17	19	17	19	23	21	17	17	16		
Residential Parking Total	10	11	19	20	22	25	24	26	18	20	18	7	12	11		
TOTAL	**56**	**62**	**101**	**87**	**90**	**87**	**103**	**88**	**83**	**91**	**97**	**90**	**90**	**83**		

Peak hour(s)

Hours of 80% utilization

Sunday A: Occupancy Percentage by Hour

Date: Sun 11/6/2016	Start time: 7 AM PM	8 AM PM	9 AM PM	10 AM PM	11 AM PM	12 AM PM	1 AM PM	2 AM PM	3 AM PM	4 AM PM	5 AM PM	6 AM PM	7 AM PM	8 AM PM	9 AM PM	10 AM PM
1 **Ralston Pl** angled parking	0%	20%	20%	20%	40%	20%	40%	60%	60%	40%	60%	60%	60%	40%		
2A **Beverly Rd** angled parking (north)	21%	50%	93%	79%	71%	64%	93%	50%	43%	36%	57%	86%	71%	57%		
2B **Beverly Rd** angled parking (south)	29%	24%	90%	67%	71%	62%	81%	62%	62%	62%	76%	95%	86%	76%		
3 **Overlook Dr** angled parking	0%	0%	75%	100%	100%	0%	100%	50%	25%	25%	75%	75%	50%	50%		
4 **Colonial Dr** residential parking	5%	5%	24%	33%	43%	57%	57%	71%	43%	48%	48%	14%	38%	33%		
5 **Beverly Rd school employee lot**	34%	34%	37%	29%	23%	31%	37%	29%	31%	37%	34%	34%	34%	29%		
6 **Ralston Pl school employee lot**	54%	46%	38%	38%	23%	23%	23%	31%	31%	46%	54%	31%	31%	31%		
7 **Ralston Pl school drop-off zone**	0%	0%	8%	8%	15%	23%	23%	23%	31%	31%	15%	8%	8%	15%		
8 **Ralston Pl** residential parking	11%	11%	33%	22%	44%	44%	44%	33%	44%	56%	44%	11%	11%	11%		
9 **McCully St** residential parking	21%	29%	29%	29%	36%	29%	29%	36%	21%	29%	14%	14%	14%	14%		
10 **Akron Ave** residential parking	33%	33%	47%	47%	27%	33%	27%	20%	13%	7%	13%	7%	7%	7%		
11 **Municipal parking lot**	35%	35%	50%	40%	46%	46%	50%	42%	48%	56%	56%	54%	54%	56%		
24-Hour Lot Permits (24)																
Day Lot Permits (D)																
Overnight Lot Permits (N)																
All Other Vehicles																
12 **Overlook Dr** parallel parking	33%	100%	100%	67%	67%	0%	0%	0%	0%	0%	33%	67%	67%	33%		
Metered Parking Total	28%	35%	66%	54%	58%	47%	63%	47%	48%	51%	61%	69%	64%	59%		
Muni Lot Non-Daytime Permit Total	65%	59%	46%	47%	32%	32%	33%	40%	43%	41%	48%	65%	65%	67%		
All Other Municipal Lot Parkers	35%	41%	54%	53%	68%	68%	67%	60%	57%	59%	52%	35%	35%	33%		
School Parking Total	31%	30%	31%	26%	21%	28%	31%	28%	31%	38%	34%	28%	28%	26%		
Residential Parking Total	17%	19%	32%	34%	37%	42%	41%	44%	31%	34%	31%	12%	20%	19%		
TOTAL	**26%**	**29%**	**47%**	**40%**	**42%**	**40%**	**48%**	**41%**	**39%**	**42%**	**45%**	**42%**	**42%**	**39%**		

Peak hour(s)

Hours of 80% utilization

Sunday B: Occupied Spaces by Hour

Steelers Home Game

Date: Sun 11/13/2016	Start time:	7 AM PM	8 AM PM	9 AM PM	10 AM PM	11 AM PM	12 AM PM	1 AM PM	2 AM PM	3 AM PM	4 AM PM	5 AM PM	6 AM PM	7 AM PM	8 AM PM	9 AM PM	10 AM PM
1 **Ralston Pl** angled parking						1	1	4	3	1	2	2	2	3	3		
2A **Beverly Rd** angled parking (north)						13	13	9	8	11	6	9	8	9	11		
2B **Beverly Rd** angled parking (south)						16	20	15	19	19	21	15	17	17	17		
3 **Overlook Dr** angled parking						3	4	2	3	2	1	2	1	1	3		
4 **Colonial Dr** residential parking						8	8	8	9	9	9	8	8	7	6		
5 **Beverly Rd school employee lot**						10	10	9	10	7	10	9	9	13	15		
6 **Ralston Pl school employee lot**						7	6	5	4	3	4	3	1	1	1		
7 **Ralston Pl school drop-off zone**						4	5	4	5	2	2	0	0	0	0		
8 **Ralston Pl** residential parking						2	2	1	1	3	2	3	8	7	5		
9 **McCully St** residential parking						7	6	6	5	6	5	6	5	6	5		
10 **Akron Ave** residential parking						6	7	7	6	9	11	10	10	9	3		
11 **Municipal parking lot**						30	28	29	28	29	25	27	27	28	29		
24-Hour Lot Permits (24)						5	5	6	7	6	7	8	8	8	9		
Day Lot Permits (D)						0	0	0	0	0	0	0	0	0	0		
Overnight Lot Permits (N)						5	5	5	5	5	5	5	5	6	8		
All Other Vehicles						20	18	18	16	18	13	14	14	14	12		
12 **Overlook Dr** parallel parking						3	3	1	1	3	3	2	2	2	0		
Metered Parking Total						66	69	60	62	65	58	57	57	60	63		
Muni Lot Non-Daytime Permit Total						10	10	11	12	11	12	13	13	14	17		
All Other Municipal Lot Parkers						20	18	18	16	18	13	14	14	14	12		
School Parking Total						21	21	18	19	12	16	12	10	14	16		
Residential Parking Total						23	23	22	21	27	27	27	31	29	19		
TOTAL						**110**	**113**	**100**	**102**	**104**	**101**	**96**	**98**	**103**	**98**		

Peak hour(s)

Hours of 80% utilization

Sunday B: Occupancy Percentage by Hour

Steelers Home Game

Date: Sun 11/13/2016 Start time:	7 AM/PM	8 AM/PM	9 AM/PM	10 AM/PM	11 AM/PM	12 AM/PM	1 AM/PM	2 AM/PM	3 AM/PM	4 AM/PM	5 AM/PM	6 AM/PM	7 AM/PM	8 AM/PM	9 AM/PM	10 AM/PM
1 **Ralston Pl** angled parking					20%	20%	80%	60%	20%	40%	40%	40%	60%	60%		
2A **Beverly Rd** angled parking (north)					93%	93%	64%	57%	79%	43%	64%	57%	64%	79%		
2B **Beverly Rd** angled parking (south)					76%	95%	71%	90%	90%	100%	71%	81%	81%	81%		
3 **Overlook Dr** angled parking					75%	100%	50%	75%	50%	25%	50%	25%	25%	75%		
4 **Colonial Dr** residential parking					38%	38%	38%	43%	43%	43%	38%	38%	33%	29%		
5 **Beverly Rd school employee lot**					29%	29%	26%	29%	20%	29%	26%	26%	37%	43%		
6 **Ralston Pl school employee lot**					54%	46%	38%	31%	23%	31%	23%	8%	8%	8%		
7 **Ralston Pl school drop-off zone**					31%	38%	31%	38%	15%	15%	0%	0%	0%	0%		
8 **Ralston Pl** residential parking					22%	22%	11%	11%	33%	22%	33%	89%	78%	56%		
9 **McCully St** residential parking					50%	43%	43%	36%	43%	36%	43%	36%	43%	36%		
10 **Akron Ave** residential parking					40%	47%	47%	40%	60%	73%	67%	67%	60%	20%		
11 **Municipal parking lot**					63%	58%	60%	58%	60%	52%	56%	56%	58%	60%		
24-Hour Lot Permits (24)																
Day Lot Permits (D)																
Overnight Lot Permits (N)																
All Other Vehicles																
12 **Overlook Dr** parallel parking					100%	100%	33%	33%	100%	100%	67%	67%	67%	0%		
Metered Parking Total					69%	73%	63%	65%	68%	61%	60%	60%	63%	66%		
Muni Lot Non-Daytime Permit Total					33%	36%	38%	43%	38%	48%	48%	48%	50%	59%		
All Other Municipal Lot Parkers					67%	64%	62%	57%	62%	52%	52%	52%	50%	41%		
School Parking Total					34%	34%	30%	31%	20%	26%	20%	16%	23%	26%		
Residential Parking Total					39%	39%	37%	36%	46%	46%	46%	53%	49%	32%		
TOTAL					**51%**	**53%**	**47%**	**47%**	**48%**	**47%**	**45%**	**46%**	**48%**	**46%**		

Peak hour(s)

Hours of 80% utilization

Key Observations

In detailed analysis of the data findings, a number of observations can be made in regard to the occupancy patterns of the parking shed.

Overall

1. There is approximately 47,600 square feet of commercial development that relies on parking in the business district and surrounding neighborhood. About 50% of the square footage is retail/service, 40% restaurant, and 10% office.

2. During weekday daytime periods, the ratio of metered parking spaces per 1,000 square feet of total business square footage is 2.00; when factoring residential street parking along with metered parking, there are 3.28 spaces per 1,000 square feet of business.

3. During weekend daytime periods (10 am to 5 pm), the ratio changes to 3.27 spaces per 1,000 square feet of commercial space (based on the availability of both metered and school parking zones).

4. During weekday and weekend evening periods (after 5 pm), there are 215 unrestricted parking spaces available in all three zones—metered, residential non-metered, and school. This equates to a ratio of 8.91 spaces per 1,000 square feet of commercial space typically open for business during this evening time period.

5. Of the 60± single-family and duplex units in the parking shed, approximately 8 of those units (13.3%) do not have off-street parking opportunities on the lot of their dwelling.

6. Of the 75± apartment units in the parking shed, it is estimated that 1/3 to 1/2 of the units do not have off-street parking opportunities on the lot of their dwelling.

7. Parking peaks in the parking shed occurred during the evening dinner period (6 to 8 pm) on both weekdays and Saturdays, with lunchtime (12 to 1 pm) being a secondary peak period on weekdays.

Zone 1 – Metered Spaces

1. 6 pm to 8 pm was the peak utilization time for metered parking each day, with 95% or greater peak occupancy observed on Thursday evening, Friday evening, and Saturday.

2. 12 pm to 1 pm was the second most popular range, with peaks of 81% observed on Wednesday and Thursday lunch periods and 95% peaks observed on Saturday.

3. The municipal parking lot's peak occupancy occurred on Friday and Saturday nights between 6 pm and 9 pm. During this timeframe, a high number of cars were observed on trips of relatively quick turnover (15± minutes).

4. Employees of businesses in the Beverly Road shops were observed utilizing the corridor at all times of the week.

5. During midday on weekdays, approximately 50% of the cars parked in the municipal lot had permits.

The lot was typically 50%, and occasionally 70% (some lunches), full during this time.

Zone 2 – School Spaces

1. During unrestricted school operation time, the school parking areas had far less occupancy demand when compared to the metered parking and the residential street parking. The areas never exceeded 54% capacity. With 61 total parking spaces in the school zone, that equates to 33 underutilized spaces at peak use.

2. The Ralston Place school drop-off zone was most utilized on Saturday evenings in the 7 pm hour. This, along with 7 pm on Friday evenings, was also the only hour during the week of field work in which all metered spots were filled to capacity.

Zone 3 – Residential Spaces

1. On weekdays, McCully Street was the most utilized of the four residential street corridors included in the count in terms of percentage filled. Akron Avenue was not far behind.

2. On weekdays, Ralston Place was the least utilized of the four residential streets for parking, followed by Colonial Drive. Yet, in comparing the two, there were more repeating peak occupancy periods on Colonial throughout the week.

3. Of the four residential street corridors included in the count, Akron Avenue saw the longest-sustained amount of heavy utilization both on weekends and overall.

4. During the weekend, McCully Street experienced the least amount of disturbance of the four residential street corridors.

5. Despite having the fewest number of parking spots of the four residential streets, the stretch of Ralston Place south of Akron Avenue was the least utilized of the four corridors overall, both in percentage and number of vehicles.

6. All residential streets experienced specific peaks during busy restaurant times.

Miscellaneous

1. Parallel parking on the northern portion of Overlook Drive occurs on weekends and is problematic for traffic at the Colonial Drive intersection as well as for through-traffic.

2. Marlin Drive East and Marlin Drive West experience significant fluctuation in parking demand during peak times as compared to other portions of the day.

3. Vehicles with ACD permits were observed utilizing the Overlook Drive municipal lot as a permit-equivalent condition.

4. Parked vehicles associated with deliveries on Volta Way (alley) were observed standing for both short and long periods of time throughout any given portion of the week.

RECOMMENDATIONS

Proposed Concepts and Strategies

After the second group of public meetings, where EPD consultants presented on Key Observations and Findings and the counts from the field work, ten recommendation scenarios were developed based on the findings and counts. These recommendations were meant to be diverse in their scope, addressing issues ranging from blocked residential driveways to overnight parking restrictions to meter enforcement on Saturdays. Three of the recommendations involved physical changes, including the conversion of streets and the addition and removal of parking spaces.

The ten Recommendations conceptualized and presented as part of the final public meeting were:

1. Directional No Parking Signs – Add "No Parking" signs with arrows; place in precise locations.
2. "Do Not Block Driveways" Signs – Place "Do Not Block Driveways" signs at each street entrance in the Study Area.
3. Driveway Paint Markings – Paint street markings in front of and around driveway entrances.
4. Overlook Conservation Option A ("Block Loop" option; 5 new parking spaces) – Convert Akron Avenue between Ralston Way and Overlook Drive to one-way traffic and move residential parallel parking on Akron between Overlook and Marlin Drive East across the street; convert Overlook between Beverly Road and Akron to one-way traffic and add 5 parallel parking spaces there.
5. Overlook Conversion Option B (14 new parking spaces) – Convert Overlook between Volta Way and Akron to one-way traffic, shift the spaces in the first parking row of the municipal Overlook Lot to allow for legal two-way entry from Overlook, seal off the Overlook Lot driveway closest to Akron (adds 1 additional space in the lot), and then add 13 additional angled/head-in metered parking spaces on Overlook.
6. Overlook Conversion Option C (13 new parking spaces) – Convert Overlook between Volta and Akron to one-way traffic, shift the spaces in the first parking row of the municipal Overlook Lot to allow for two-way entry from Overlook, add 10 additional angled/head-in metered parking spaces on Overlook, seal off the intersection of Overlook and Akron with a small plaza, add 3 perpendicular head-in parking spaces at the end of the newly sealed-off Overlook, and then move all existing residential parking on Akron across the street.
7. Residential Permits – Convert all residential parallel parking in the Study Area to permit parking and sign accordingly.
8. Reserved Parking in School Lots – Work with businesses to encourage employee parking in the Lincoln Elementary School lots during available hours; restrict the lots to business employee and special event use during those hours.
9. Eliminate Overnight Residential Parking Restrictions – Allow residents to parallel park on streets between 2 am and 6 am, except perhaps on designated street sweeping days.
10. Enforce Metered Parking on Saturdays – Check meters in the business district using the same schedule as the meters are checked and enforced from Monday through Friday.

The next 10 pages illustrate these individual recommendations graphically as they were presented at the third public meeting and voted on by attendees.

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SCENARIO 1

LEGEND

- Driveway Pavement Markings
- New Parking Space
- New One-Way Traffic Pattern
- Residential Permit Zone
- No Parking Sign with Arrow Direction
- "Do Not Block Driveways" Signs
- Metered Parking Areas

DIRECTIONAL NO PARKING SIGNS

BEVERLY ROAD PARKING STUDY

Prepared for: Municipality of Mt. Lebanon
Prepared by: Environmental Planning and Design, LLC

December 6, 2016
2174.16.01

0 80 160 Feet

NORTH

SCENARIO 2

LEGEND

- Driveway Pavement Markings
- New Parking Space
- New One-Way Traffic Pattern
- Residential Permit Zone
- No Parking Sign with Arrow Direction
- "Do Not Block Driveways" Signs
- Metered Parking Areas

"DO NOT BLOCK DRIVEWAYS" SIGNS

BEVERLY ROAD PARKING STUDY

Prepared for: Municipality of Mt. Lebanon
Prepared by: Environmental Planning and Design, LLC

December 6, 2016
2174.16.01

0 80 160 Feet

NORTH

SCENARIO 3

LEGEND

- Driveway Pavement Markings
- New Parking Space
- New One-Way Traffic Pattern
- Residential Permit Zone
- No Parking Sign with Arrow Direction
- "Do Not Block Driveways" Signs
- Metered Parking Areas

DRIVEWAY PAINT MARKINGS

BEVERLY ROAD PARKING STUDY

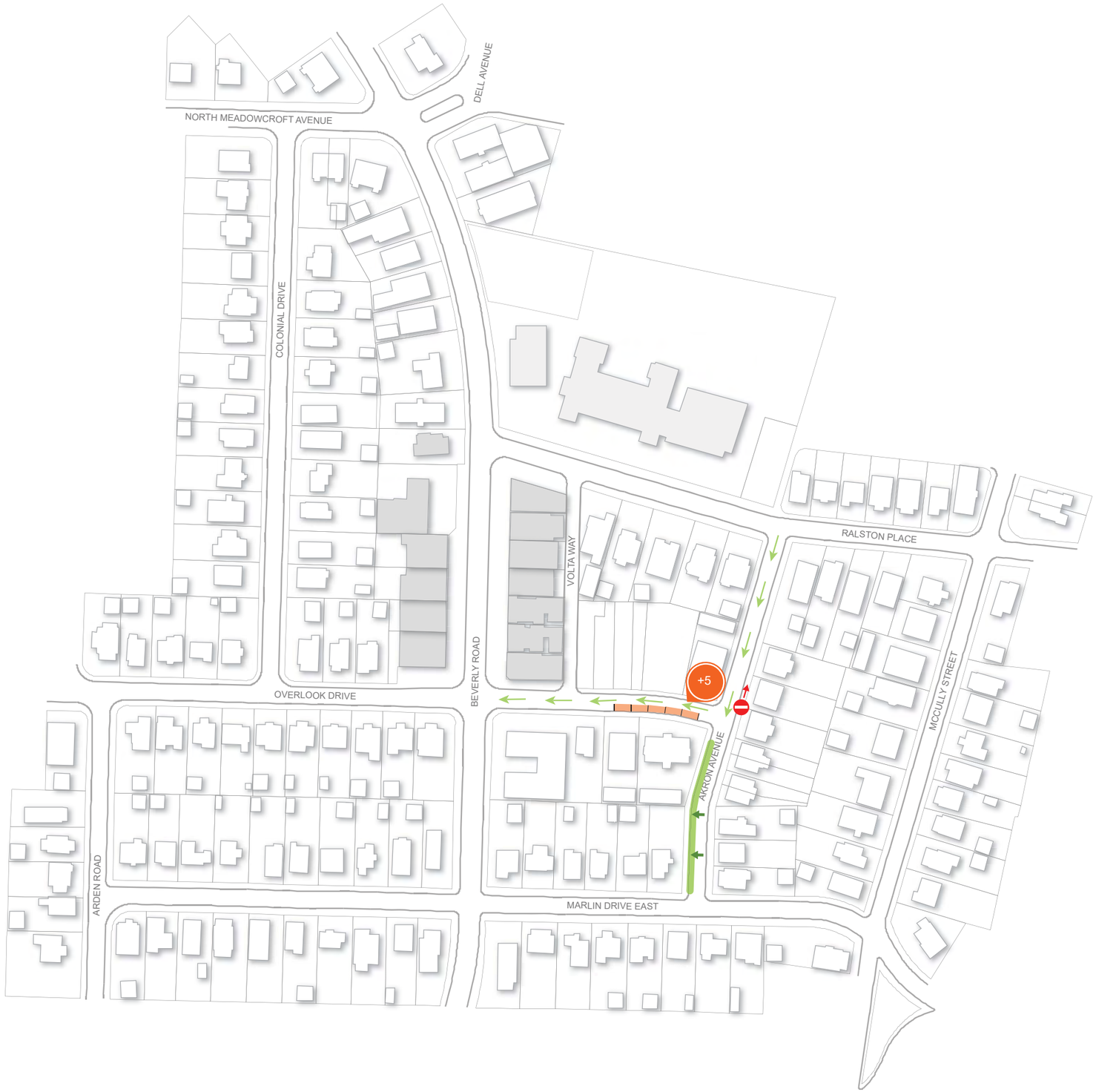
Prepared for: Municipality of Mt. Lebanon
Prepared by: Environmental Planning and Design, LLC

December 6, 2016
2174.16.01

0 80 160 Feet

NORTH

SCENARIO 4



LEGEND

- Driveway Pavement Markings
- New Parking Space
- New One-Way Traffic Pattern
- Residential Permit Zone
- No Parking Sign with Arrow Direction
- "Do Not Block Driveways" Signs
- Metered Parking Areas

OVERLOOK CONVERSION OPTION A ("BLOCK LOOP")

BEVERLY ROAD PARKING STUDY

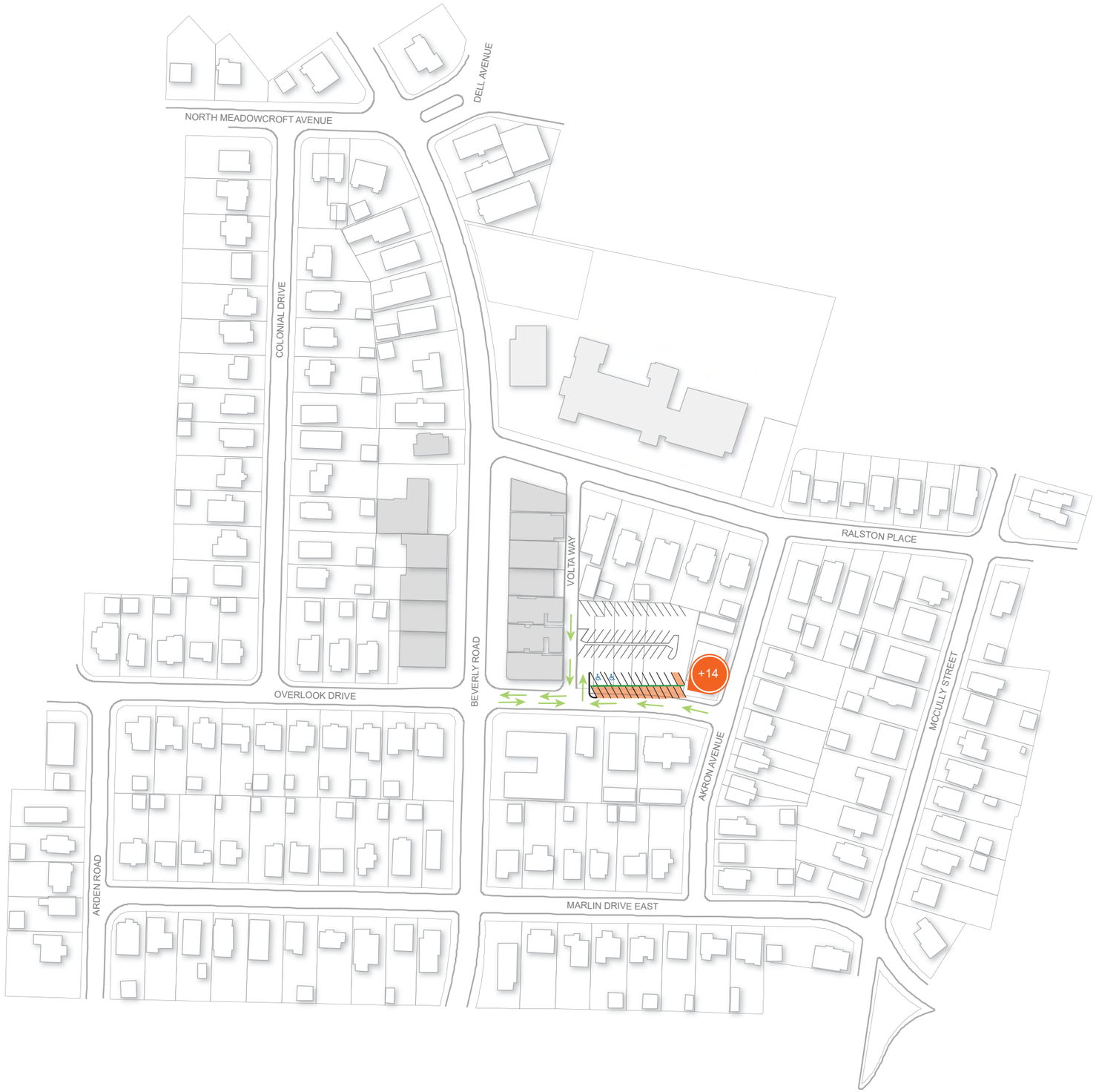
Prepared for: Municipality of Mt. Lebanon
Prepared by: Environmental Planning and Design, LLC

December 6, 2016
2174.16.01

0 80 160 Feet

NORTH

SCENARIO 5



LEGEND

- Driveway Pavement Markings
- New Parking Space
- New One-Way Traffic Pattern
- Residential Permit Zone
- No Parking Sign with Arrow Direction
- "Do Not Block Driveways" Signs
- Metered Parking Areas

OVERLOOK CONVERSION OPTION B

BEVERLY ROAD PARKING STUDY

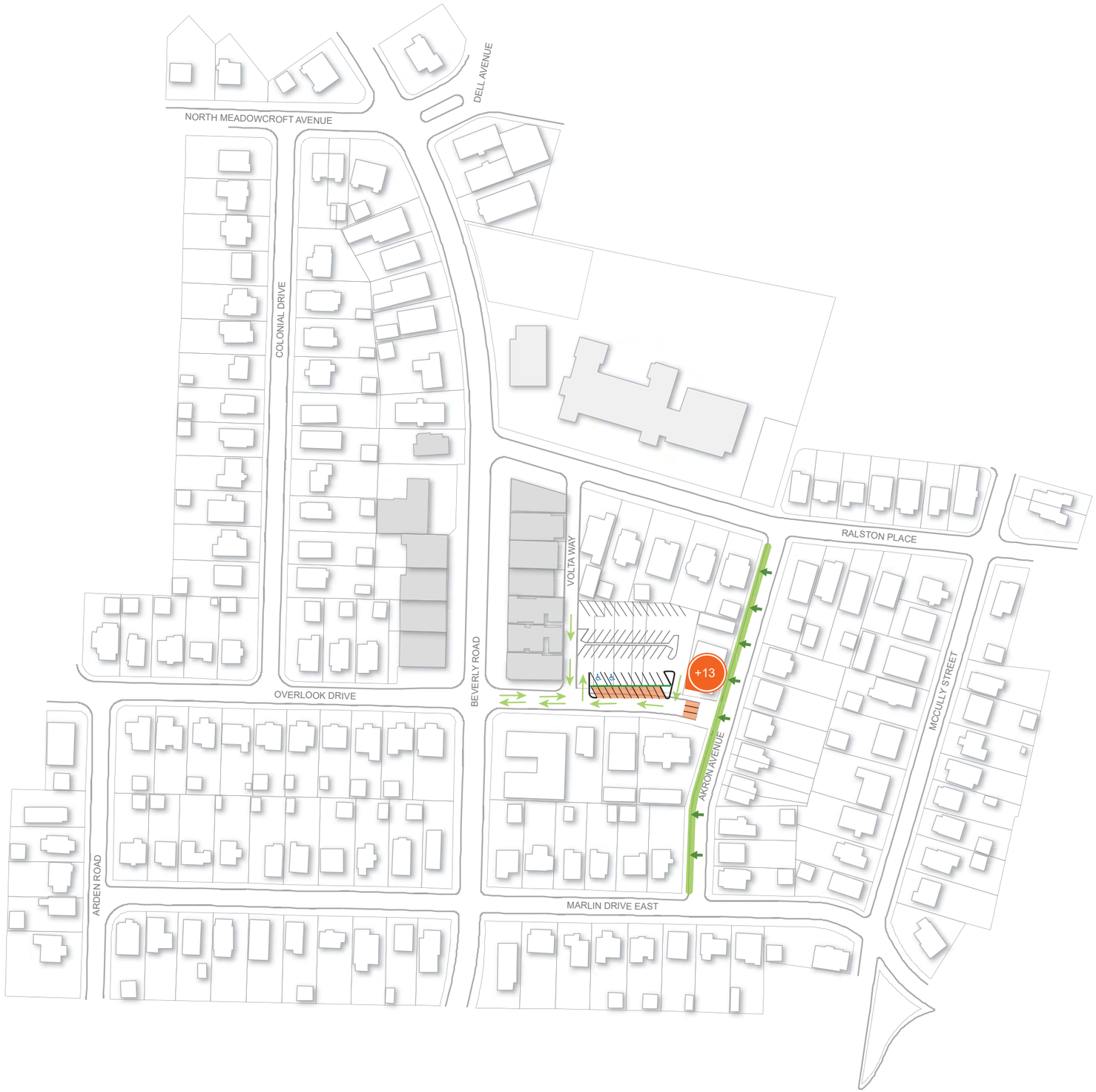
Prepared for: Municipality of Mt. Lebanon
Prepared by: Environmental Planning and Design, LLC

December 6, 2016
2174.16.01

0 80 160 Feet

NORTH

SCENARIO 6



LEGEND

- Driveway Pavement Markings
- New Parking Space
- New One-Way Traffic Pattern
- Residential Permit Zone
- No Parking Sign with Arrow Direction
- "Do Not Block Driveways" Signs
- Metered Parking Areas

OVERLOOK CONVERSION OPTION C

BEVERLY ROAD PARKING STUDY

Prepared for: Municipality of Mt. Lebanon
Prepared by: Environmental Planning and Design, LLC

December 6, 2016
2174.16.01

0 80 160 Feet

NORTH

SCENARIO 7

LEGEND

- Driveway Pavement Markings
- New Parking Space
- New One-Way Traffic Pattern
- Residential Permit Zone
- No Parking Sign with Arrow Direction
- "Do Not Block Driveways" Signs
- Metered Parking Areas

RESIDENTIAL PERMITS

BEVERLY ROAD PARKING STUDY

Prepared for: Municipality of Mt. Lebanon
Prepared by: Environmental Planning and Design, LLC

December 6, 2016
2174.16.01

0 80 160 Feet

NORTH

SCENARIO 8

LEGEND

- Driveway Pavement Markings
- New Parking Space
- New One-Way Traffic Pattern
- Residential Permit Zone
- No Parking Sign with Arrow Direction
- "Do Not Block Driveways" Signs
- Metered Parking Areas

RESERVED PARKING IN SCHOOL LOTS

BEVERLY ROAD PARKING STUDY

Prepared for: Municipality of Mt. Lebanon
Prepared by: Environmental Planning and Design, LLC

December 6, 2016
2174.16.01

0 80 160 Feet

NORTH

SCENARIO 9

LEGEND

- Driveway Pavement Markings
- New Parking Space
- New One-Way Traffic Pattern
- Residential Permit Zone
- No Parking Sign with Arrow Direction
- "Do Not Block Driveways" Signs
- Metered Parking Areas

2-6 AM

ELIMINATE OVERNIGHT RESIDENTIAL PARKING RESTRICTIONS

BEVERLY ROAD PARKING STUDY

Prepared for: Municipality of Mt. Lebanon
Prepared by: Environmental Planning and Design, LLC

December 6, 2016
2174.16.01

0 80 160 Feet

NORTH

SCENARIO 10

LEGEND

- Driveway Pavement Markings
- New Parking Space
- New One-Way Traffic Pattern
- Residential Permit Zone
- No Parking Sign with Arrow Direction
- "Do Not Block Driveways" Signs
- Metered Parking Areas

ENFORCE METERED PARKING ON SATURDAYS

BEVERLY ROAD PARKING STUDY

Prepared for: Municipality of Mt. Lebanon
Prepared by: Environmental Planning and Design, LLC

December 6, 2016
2174.16.01

0 80 160 Feet

NORTH

Participant-Preferred Conceptual Plan

As discussed in the Methodology section of this Study, attendees at the third and final public meeting were able to evaluate the full range of recommendation scenarios and to express their preferences for their three most favored. Ultimately, Scenarios 3, 5, 7, and 10 emerged as the preferred.

At the end of the third public meeting, all four of the preferred scenarios were integrated, producing the graphic depicted on the following page. This graphic conceptualizes a cohesive and complementary set of recommendations for short-term and long-term implementation.

The integrated recommendations address four different issues:

- Blocking of residential driveways
- Parking capacity in the metered spaces
- Non-resident parking on residential streets during the day
- Enforcement of metered parking on weekdays vs. weekends

The participant-preferred conceptual plan proposes the marking of residential driveways with paint to discourage blocking by parked cars, adds 14 new metered parking spaces to increase capacity in the business district, reinstates a residential permit program in this part of the Municipality, and makes the enforcement schedule of metered spaces consistent between both weekdays and Saturdays.

Following the graphic on the next page, the four participant-preferred scenarios are discussed in detail. The scenarios are presented in the order they were most favored by the meeting participants.

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LEGEND

- Driveway Pavement Markings
- New Parking Space
- New One-Way Traffic Pattern
- Residential Permit Zone
- No Parking Sign with Arrow Direction
- "Do Not Block Driveways" Signs
- Metered Parking Areas

SCENARIOS 3, 5, 7, AND 10 (OVERLAID)

BEVERLY ROAD PARKING STUDY

Prepared for: Municipality of Mt. Lebanon
Prepared by: Environmental Planning and Design, LLC

December 6, 2016
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NORTH

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Participant-Preferred Recommendation Scenario 5: Overlook Lot/Street Conversion Option B (14 new parking spaces)

The conversion of Overlook Drive between Volta Way and Akron Avenue proposes to direct traffic from Beverly Road to the Overlook municipal parking lot while minimizing commercial-related traffic on Akron Avenue. This has the effect of encouraging business district visitors and employees to make use of the spaces in the municipal lot rather than parking on residential streets.

A second key modification called for in Conversion Option B includes shifting the row of the municipal lot's parking spaces facing Overlook Drive inward to accomplish two objectives:

1. Allowing legal two-way traffic in and out of the parking lot using a single driveway—in this case, Volta Way (which is currently only one-way from Ralston Place to Overlook Drive)
2. Closing off the parking lot's existing southern point of ingress/egress to Overlook Drive to more efficiently circulate traffic through the lot (and to do so using the expanded Volta Way ingress/egress point resulting from Objective #1 above) and to facilitate the addition of street parking spaces along Overlook Drive

With this modification, the existing spaces in the lot at the corner of Volta Way and Overlook Drive will need to be shifted in order to create adequate width for the new ingress into the lot at Volta.

The third key modification adds the street parking spaces along Overlook Drive mentioned in Objective #2 above, as an addition to the 48 spaces already in the lot. There is sufficient room to add 13 angled/head-in spaces—a 27% increase over the 48 existing spaces in the lot—if the existing sidewalk and grass buffer are eliminated. With Overlook Drive and the lot at slightly different grades, a minor structural wall may need to be implemented along part of the stretch.

Finally, drivers heading north on Overlook Drive toward Beverly Road will need to be reminded to yield to oncoming traffic turning from Beverly Road to enter the parking lot via Volta Way. This can be accomplished using signage (yield signs, "two-way traffic" signs, and road markings directing drivers to transition to two-way traffic).

With the shifting of the first row of spaces in the lot and the closing-off of the existing driveway from Overlook, the conversion adds 14 total new parking spaces, with 13 of these new spaces along Overlook and the 1 additional space in the lot where the existing driveway would be closed.

Costs associated with Conversion Option B are anticipated to include, but not be limited to: new "Do Not Enter" and "Yield" signs along Overlook Drive, engineering and construction for the grade transition along the parking lot/Overlook Drive right-of-way line, rebuilding of the front row of parking spaces in the lot (curbing, repainting, moving of meters), additional curbing of Overlook where the existing lot driveway will be closed off, painting of new directional arrows and parking lines, painting of a double yellow line along the two-way portion of Overlook Drive, and the deployment of 14 new meters (equipment purchases and electrical work).

Participant-Preferred Recommendation Scenario 7: Residential Permits

The issuing of residential permits prioritizes residents' use of the streets on which they live over use by business district visitors and employees, particularly in the middle of the day. It also enforces the existing hourly limits of parking along the neighborhood's residential streets, which are posted on signs but not standardized across the neighborhood, highly visible, or consistently enforced.

The implementation of a residential permit program is anticipated to incur, but not be limited to, the following costs: vehicle window stickers (a stickerless implementation using license plate recognition is also an option and is currently being considered by the City of Pittsburgh), signage (update signage but reuse existing sign posts where possible to reduce clutter), and additional enforcement (municipal employee hours). It is anticipated that costs could be partially recouped through permit purchases.

The Municipality will need to evaluate or reconcile the allocation and/or time periods of these permits in context of the 2–6 am street parking restriction effective community-wide.

The Municipality may also want to revisit its ticketing rates as part of a movement to on-street residential permits. Neighboring municipalities Dormont and Pittsburgh both charge higher fines than does Mt. Lebanon for parking violations in residential neighborhoods.

Participant-Preferred Recommendation Scenario 10: Enforce Metered Parking on Saturdays

Based on this study's field observations, Saturday is the busiest overall day of the week for the Overlook municipal parking lot, with consistently high occupancy throughout the entire day, averaging 82% between the hours of 7 am and 10 pm and never dipping below 60%. Peak periods of over 90% occupancy were observed in 6 of the 16 counted hours in the Saturday field work.

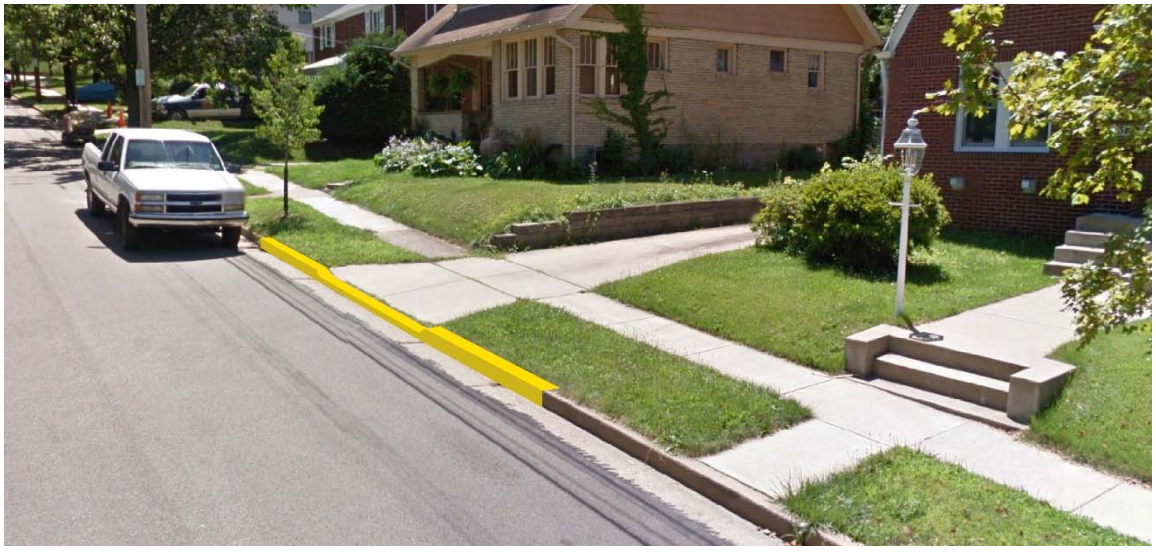
To encourage the continued turnover of parking spaces throughout the day, participants in this study said that they favored the Municipality enforcing parking payment on Saturdays. Overall, residents expressed a desire for more consistent enforcement of parking laws.

Anticipated requirements for this recommendation would be additional staff time for the enforcement of meters.

Participant-Preferred Recommendation Scenario 3: Driveway Paint Markings

Explicitly marking driveway entrances with road paint reduces the ambiguity of where on-street parking is permitted and allows residents to safely move in and out of their driveways. Requirements for pavement marking may include, but not be limited to: road paint (preferably yellow, but may be white), Public Works time, and temporary parking restrictions while the work is completed.

Pavement markings can be drawn in any number of patterns, including the patterns shown in these example sketches of Marlin Drive East:



Flexible reflective plastic bollards may also be used for the purposes of visibility and as physical reinforcement of signage and pavement markings, as shown in this example from Columbus, Ohio:

Other Considerations

Through 76 hours of manual counts completed by walking and driving the circuit outlined in the Methodology and Data Collection section, overall parking capacity in the Study Area never exceeded 77% of the available inventory, with an average of 54% over the course of the field work.

However, if additional land uses are introduced into the corridor that further contribute to existing peak hours of demand, the Municipality may need to evaluate the balance of the recommendation scenarios presented in this study as well as reconsider parking-related ordinance requirements and/or permitting relationships applicable to the neighborhood.

With the combination of participant-preferred conceptual plan elements, it is anticipated that the Municipality will experience a reduced demand for Overnight permits in the Overlook parking lot. If residential on-street permitting is not pursued, the Municipality should give consideration to defining a specific number of Overnight permits available for purchase and/or adjusting the timeframes for these permits so as to not create conflict between needed weekend peak hour commercial lot parking accommodations and overnight permittees' needs.

The Municipality is also encouraged to continue working with the School District to ensure that parking functions for all involved parties remain an asset to the neighborhood. All parties, including apartment dwellers who rely on the Lincoln Elementary School lots, should be at the table in the discussions.

Other strategies beyond the ten recommendation scenarios presented in this report may prove valuable as well in maximizing efficiency and minimizing traffic disruption. For instance, consideration could be given to time-restricted uses for the angled on-street parking spaces on Ralston Place, which were observed to be less utilized than the other on-street metered spaces in the parking shed. These angled spaces could be posted for curbside loading during early evening times, when a significant number of visitors to the business district stop through to pick up takeout meals. Additionally, transforming Volta Way from the eastern edge of the Overlook lot to Ralston Place into a delivery-only drive, along with adding signage prohibiting the blocking of Volta Way (e.g., "Do Not Block Alleyway") where it serves ingress/egress needs for the Overlook lot, may help to prevent current impediments to travel by delivery vehicles.