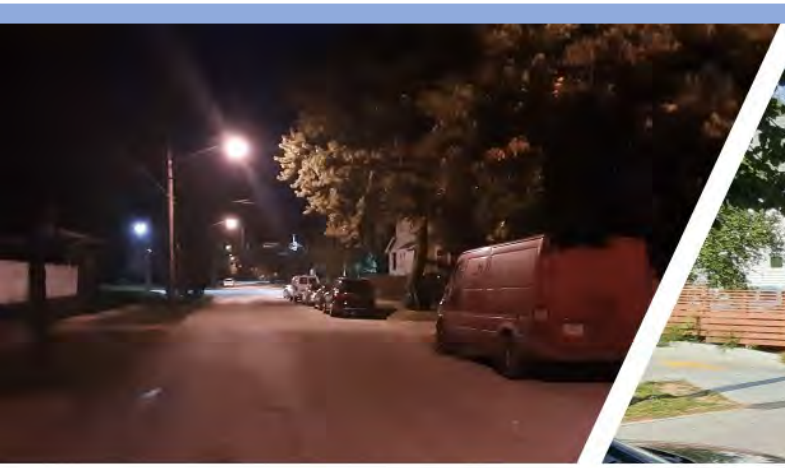
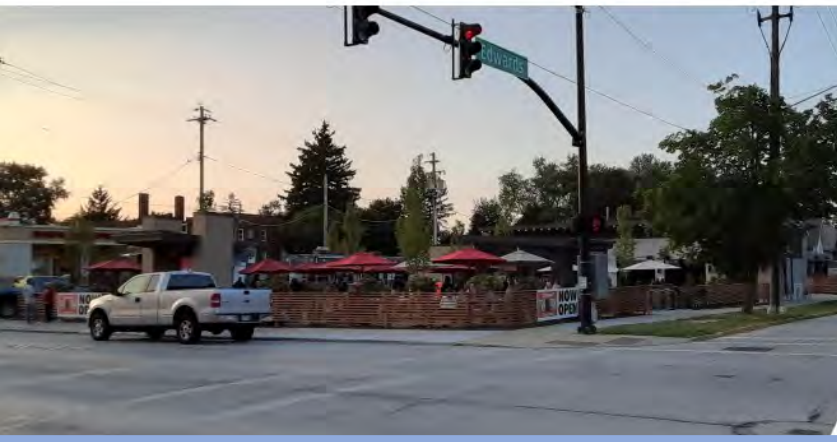
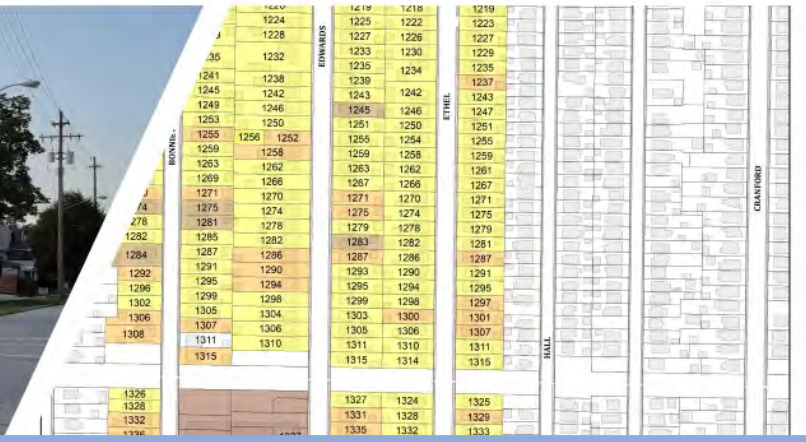
Edwards Avenue Area Parking Study
2020 Update







November 2020

City of Lakewood
Department of Planning and Development
12650 Detroit Avenue
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Lakewood, Ohio

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Prepared by:

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Introduction

This summary report serves as an update to the 2018 study conducted in response to resident concern over the impact on area parking availability by the development of the Lakewood Truck Park project at the corner of Edwards and Detroit Avenues. This update is intended to provide findings regarding area parking demand following the completion of the project and to provide conclusions and recommendations toward continued discussion of area parking issues.

Like other areas of Lakewood, the study area is a combination of high-density residential in proximity with a high density of commercial uses (bars, restaurants, and shops). This combination often results in high demand/competition over parking as separate commercial and residential demand patterns converge and overlap.

A few observations from the 2018 study have been carried forward for validation and further exploration. These include:

- Consistent higher demand for on-street spaces in/adjacent to residential areas.
- Lower demand for on-street and off-street spaces (parking lots) in commercial areas.

The report provides a short background section before focusing on findings across three different perspectives (occupancy rates, demand patterns, and resident dependence on on-street parking). The report concludes with select conclusions and recommendations based on the findings.

Background

This section provides background on the Lakewood Truck Park project, a summary of the 2018 study, and the methodology used for this 2020 update.

Project Background

The Lakewood Truck Park project (Docket No. 05-20-18) underwent review by the City's Planning Commission during May and June of 2018. This review included the project's proposed parking plan. The City's parking code (1143.05 – Schedule of Uses and Space Requirements) requires a minimum of 1 space and a maximum of 2.5 spaces for every 1000 square feet of commercial/retail development. To meet parking requirements, developments can provide on-site (off-street) parking as part of the development and/or secure a shared parking agreement with another area business that has existing off-street parking capacity. Given Lakewood's existing density, shared parking agreements are a critical piece for many new projects to meet code requirements.

As approved by the Planning Commission in June of 2018, the Lakewood Truck Park project originally accounted for approximately 13,630 square feet – requiring the provision of between 14 (minimum) and 34 (maximum) parking spaces. In response to expressed resident concern during the review process, the Planning Commission required the project in their conditions of approval to establish and maintain the maximum level of required parking (34 spaces) at all times, including annual confirmation of this level to the City in writing as part of the routing outdoor dining review/renewal process. The parking plan submitted by the Truck Park and approved by the Commission exceeded the maximum requirement by providing 44 spaces through a combination of on-site improvements (22 new spaces provided through site development) and a shared parking agreement (22 spaces at Lakewood Dental Arts; 17117 Detroit Avenue).

Following the June 2018 approval, the project design was modified to remove a second-floor space that was part of the original design. This modification – reviewed and approved by the City's Architectural Board of Review (ABR; Docket No. 05-52-18) in December of 2018 – reduced the project square footage by approximately 1,300 square feet to a total of 12,323. No request to modify the approved parking plan and requirement of 34 spaces accompanied this change.

Following permit approval and site construction, the completed project was issued its Certificate of Use and Occupancy from the City's Building Department in May 2020.

2018 Study

The 2018 study sought to provide an initial baseline of data for the area surrounding the project site. It took a broad look at demand for both on-street and off-street (parking lot) parking across twenty-two study blocks that extended more than a quarter mile in all directions from the site. Demand data (occupancy counts) was collected from 12 to 27 October during five standard timeframes on both weekdays and weekends – for a total of seventeen individual observations. The findings were expressed in terms of occupancy rates between 0% (no demand) and 100% (all spaces taken). Consistent with most referenced "best practice" studies, overall average occupancy rates of 85% or higher defined an area as consistently approaching full. Basic study findings included:

- The average weekday occupancy rate depicted a low-to-medium level of general demand during the week – but also shows that weekday on-street parking is elevated in some areas, but not to a level always considered full. Overall, demand was 38.9% (on-street) and 31.7% (off-street). Demand for on-street parking in the blocks immediately surrounding the project site was generally higher than the overall average, with average occupancy as high as 76% for one block (Bonnieview; adjacent to Detroit).

- The average weekend occupancy rate depicted a medium-to-high level of general demand in comparison to the weekday average, but still was not considered always full. Overall, on-street demand increased to 53.5% while off-street demand remained consistent at 31.7%. Demand for on-street parking in the blocks immediately surrounding the project site generally increased, with average occupancy as high as 83% for the same block (Bonnieview; adjacent to Detroit).

The high demand observed in the area surrounding the project site was not surprising or unexpected. The area, like many in Lakewood, has a high concentration of existing multi-family housing and commercial/retail establishments. In 2018, there were at least eight bars and restaurants already in operation within 500 feet of the project site.

Among the conclusions offered by the 2018 study:

- With an average off-street occupancy of 31.7% (never higher than 57.5%), the area's parking lots displayed both existing capacity and potential to support shared parking among businesses.

- While some residential streets experienced high on-street demand, the varying levels across the broader study area suggested that spaces are available, they just may not be in the immediate vicinity to match personal preference.

- The concentration of consistently high on-street demand in the mornings and evenings along some north-south residential streets, when compared to relatively unused on-street capacity along

Detroit avenue, provided an indication that the more consistent competition for on-street spaces is likely among residents – rather than between residents and non-residents.

2020 Update - Methodology

The 2020 update focused on the central, higher-demand blocks within the broader area covered by the 2018 study (see Figure 1). Any two locations within the 2020 study area can generally be covered within a quarter mile walkshed. Implementing lessons learned from 2018, the demand data was collected from 15 to 26 September during five standard timeframes on both weekdays and weekends – however, this time a larger sample of twenty-nine total observations was taken. In addition, the 8am to 10am timeframe used in 2018 was swapped for an 11pm to 12am (midnight) timeframe in 2020 to capture demand following business/bar closure.

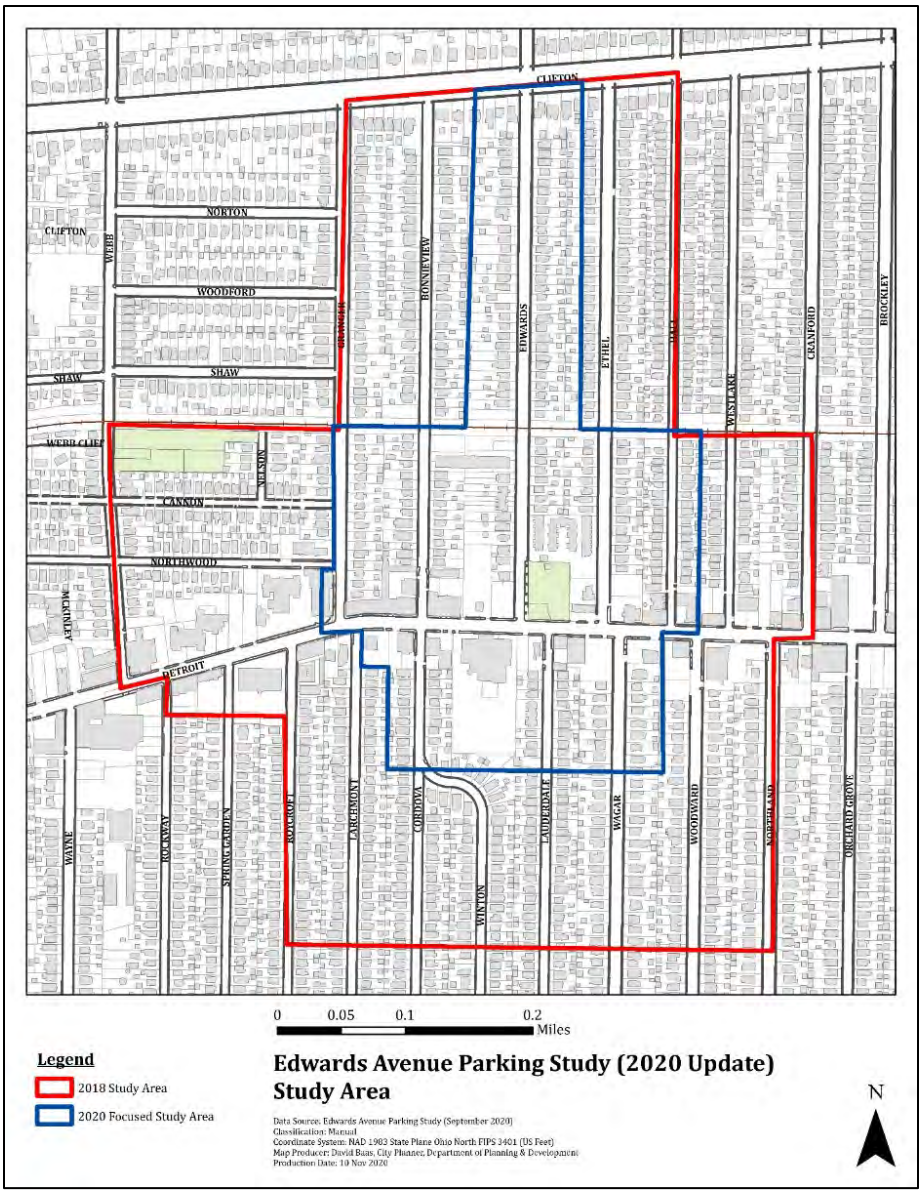

Figure 1: Study Area Boundaries

Findings

The findings for this update study are presented in three distinct perspectives of demand to inform the conclusions and recommendations.

- First, the average occupancy rates for both on-street and off-street parking are presented. These rates, ranging between 0% (no demand) and 100% (all spaces taken), provide a basic snapshot of the observed demand – allowing for an initial comparison with the 2018 data for the study area. Additionally, the 2020 data is looked at in further detail to illustrate how occupancy (demand) differs between predominately residential block faces and the predominately commercial block faces.

- Second, to add more context to the basic occupancy data, "average day" demand models are used to illustrate how the patterns of occupancy differ – and interrelate – between those predominantly residential and commercial areas. While the models allow some general comparison with the 2018 data, it is important to recognize the impact that the COVID-19 pandemic likely has on 2020 demand rates, especially in the predominately residential block faces as more area residents work from home during the day.

- Third, with heavier occupancy (demand) for on-street parking observed across the predominately residential block faces in 2018 – and without an expedient method to accurately discern "resident" from "non-resident" demand – the study provides an estimate of resident dependence on on-street parking. This estimate is derived by leveraging area data from county property records, the U.S. Census Bureau American Community Survey (2018 5-year estimates, Tract 1602), and observations on the availability and use of residential off-street parking options to enable block-level comparison of dependence within the study area as well as against two other similar areas of Lakewood.

Perspective One: Average Occupancy

Overall, the average occupancy/demand rates across the 2020 study area were found to be consistent (less than 5% change) with the rates experienced in the same area during 2018:

- The average weekday occupancy rate depicted a low-to-medium level of general demand during the week. Overall, demand was 47% (on-street) and 37% (off-street). This reflects a 3% increase in on-street demand and a 4% increase in off-street demand from 2018.

- The average weekend occupancy rate depicted a medium-to-high level of general demand in comparison to the weekday average, but not considered always full. Overall, demand was 53% (on-street) and 37% (off-street). This reflects no change to the on-street demand and a 1% increase in off-street demand from 2018.

To better understand the consistently higher demand (competition) for on-street spaces, the occupancy data can be further broken down to provide a comparison between those block faces predominately adjacent to residential areas and those block faces in immediate proximity to the Detroit commercial corridor (see Figure 2).

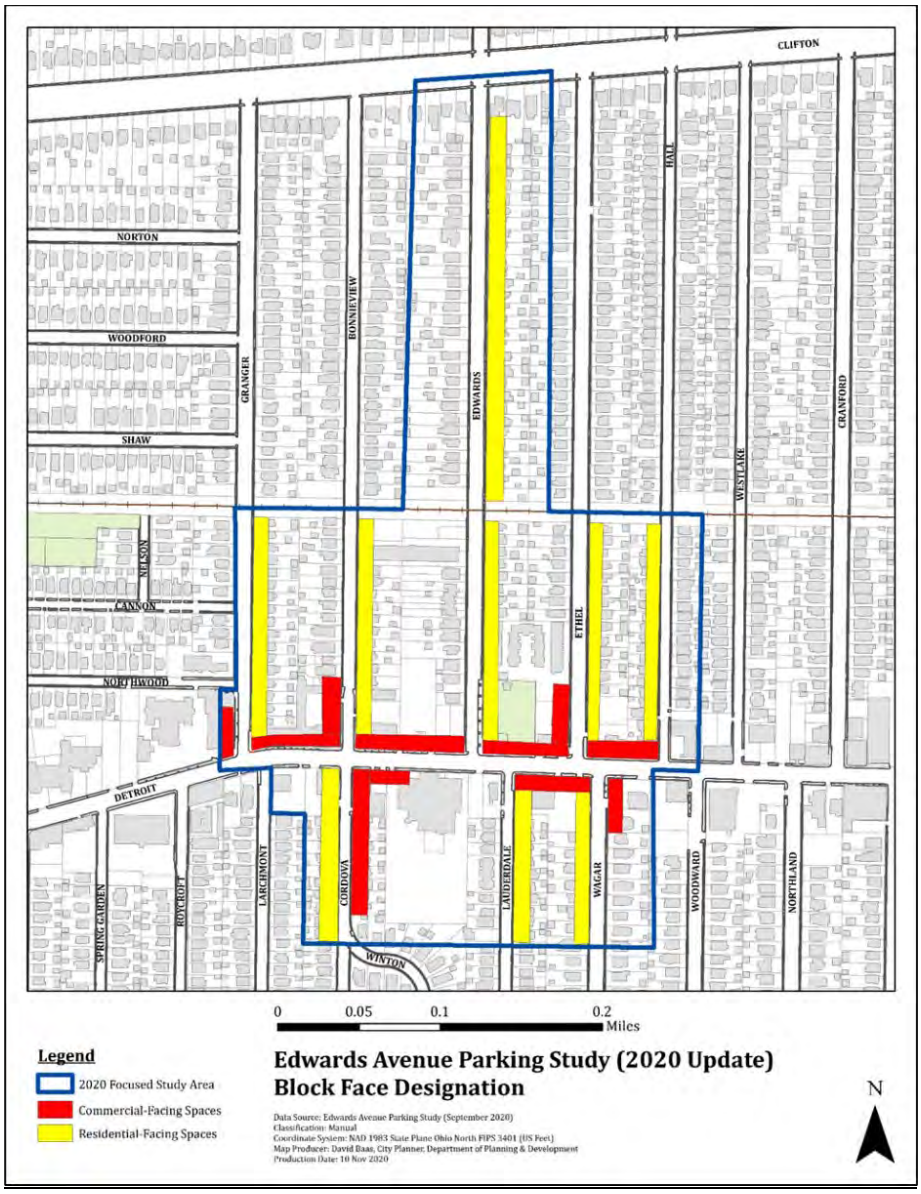

Figure 2: Commercial and Residential Block Faces

When the data of these two areas are compared – a contrast emerges that confirms that the higher demand consistently resides in residential areas (see Table 1).

Table 1: Comparison of 2020 Residential and Commercial On-Street Demand

Source of Parking	Weekday	Weekend
All Blocks	47%	53%
Predominately Residential Block Faces	70%	76%
Predominately Commercial Block Faces	34%	38%

With an average occupancy rate between 70 to 76%, the on-street spaces along residential block faces experience consistent on-street demand at approximately twice the rate of both the commercial on-street spaces (34 – 38%) – as well as those off-street spaces in parking lots (37%). As highlighted in the 2018

study background above, this level of high residential on-street demand existed in 2018 prior to the project and still exists in 2020.

The use (or lack of efficient use) of commercial off-street parking lots in the study area is notable. Commercial off-street parking holds over 70% of the study area's total parking capacity, yet only a few parking lots experience occasional heavy demand, while most do not (Table 2).

Table 2: Comparison of 2020 Off-Street Demand among select Commercial Parking Lots

Parking Lot	Number of Spaces	Weekday Average	Weekend Average	Maximum Demand
Central Lot serving 16900 block of Detroit	97	49%	58%	100%
Cozumel	34	31%	33%	100%
YMCA	206	16%	10%	38%
Dairy Queen	26	10%	10%	31%
AutoZone	40	25%	21%	53%
Lakewood Dental Arts*	24	29%	17%	54%

**Lakewood Dental Arts lot is a shared parking location for Lakewood Truck Park*

Perspective Two: "Average Day" Demand Models.

When average occupancy data are charted across the standard collection timeframes – the resulting "average day" patterns of residential and commercial parking demand for the study area can be modeled and compared against expected generic parking behaviors.

Across most municipalities, residential and commercial areas tend to follow distinct, expected generic parking behavior patterns:

- Generic residential parking behavior tends to display a "high – low – high" pattern over a typical day, as area residents depart local parking in the morning to commute to work during the day, returning to local parking in the evening. How deep or flat the depth of the "low" curve depends on the number of residents departing the area.

- Generic commercial parking behavior tends to see a "low – high – low" pattern over a typical day that reflects customers or employees arriving to use local parking during the day, only to see the demand drop off as they depart the area in the evening. However, the type of businesses within a given area can have an impact on commercial parking behavior. Areas with a higher concentration of bars and restaurants often see commercial parking demand extend into the evening and overlap with residents returning from work.

The Edwards study area, like other areas of Lakewood, is a combination of high-density residential in proximity with a high density of commercial uses (bars, restaurants, and shops). This combination results in higher demand/competition over parking in the early evening (6 to 8pm) as the commercial and residential parking demand patterns converge and overlap.

The actual observed "typical day" demand patterns for the study area are presented below for comparison against generic expected behaviors as well as each other.

Off-Street (Parking Lot) Demand Model

The first model presented is for the demand observed in off-street parking lots (Figure 3) across the 2020 study area. The demand patterns for commercial and residential parking lots fit closely with the generic

behavior patterns described above. The residential parking lots experience a "high-low-high" pattern while the commercial parking lots experience a "low – high – low" pattern with a notable peak occurring during the 6 to 8pm timeframe – expected in an area with such a high density of bars and restaurants. While a few notable lots may experience occasional high demand, with 583 total off-street spaces (479 commercial, 104 residential) available across the study area and a 37% average off-street occupancy noted above, the off-street demand patterns can be seen to never approach the 85% level considered approaching or close to full (dashed line).

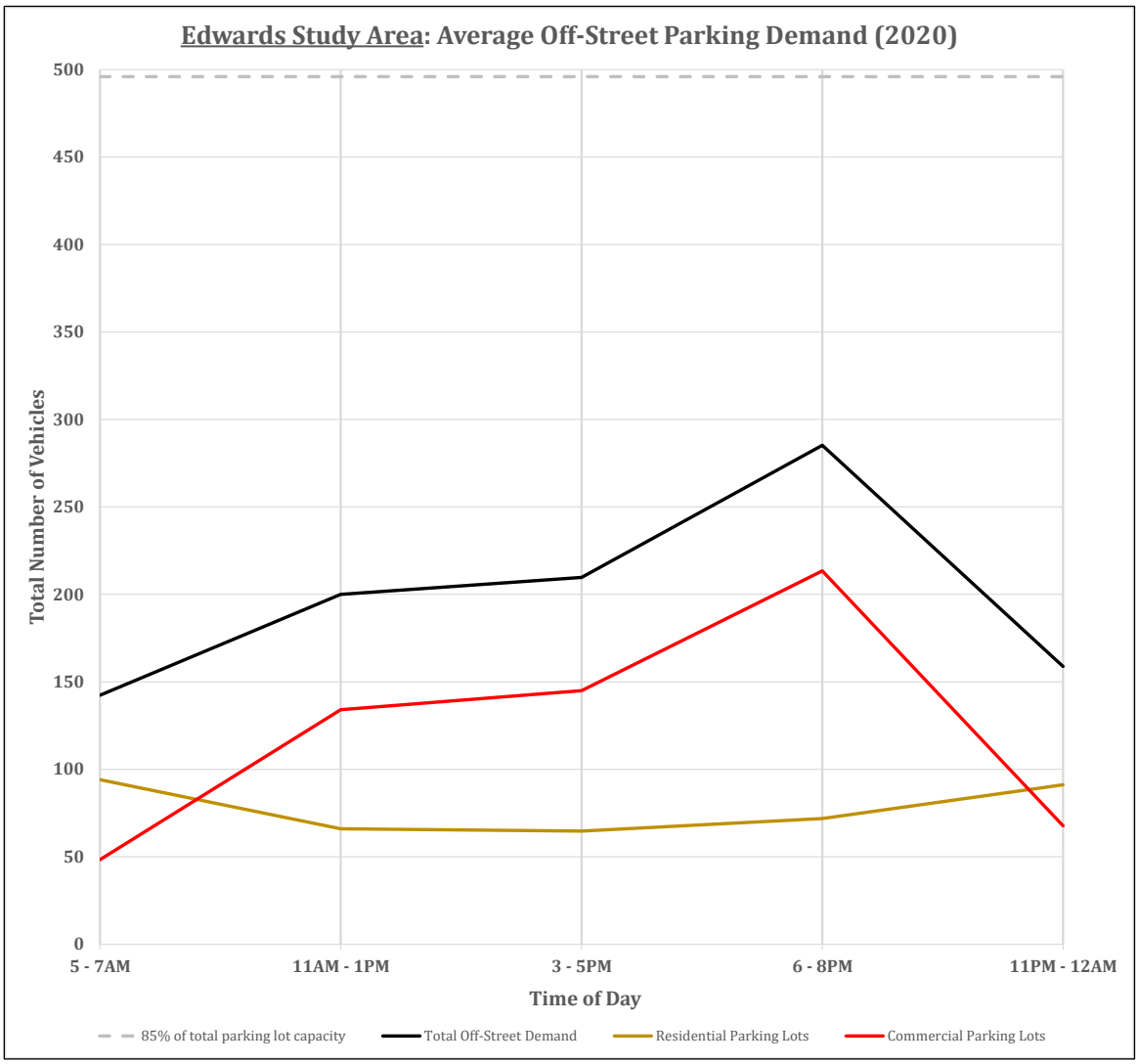

Figure 3: Off-Street (Parking Lot) Demand Model

On-Street Demand Model

The model for the demand observed in on-street spaces (Figure 4) depicts the different commercial and residential patterns across the limited supply of 229 total spaces (53 predominately commercial, 176 predominately residential) available along the streets of the study area.

While some select 2018 data is pulled in this model for comparison, it is important to account for the impact of COVID-19 on the 2020 data. During the pandemic, the Ohio Department of Transportation

(ODOT) noted a general reduction in Northeast Ohio traffic volumes by 20% or higher as initial stay-at-home orders translated to a sustained level of remote work.[1] To enable a more direct comparison with the select 2018 pattern lines, this study model includes additional accompanying 2020 "COVID" pattern lines (dashed) that incorporate a conservative 10% reduction in residential demand during the traditional workday (between 11am and 5pm) to adjust for the increase in remote workers remaining at home during that time. Additionally, the model displays sub-patterns for (1) all residential blocks north of Detroit ("Residential – North"), and (2) Edwards Avenue ("Edwards") to allow pattern comparison at varied levels.

For the on-street spaces along commercial block faces the underlying pattern is consistent with the generic commercial behavior pattern (low-high-low) and the observed commercial off-street parking pattern. This includes a notable peak during the 6 to 8pm timeframe that increased by ~30% between 2018 and 2020.

For the on-street spaces along residential block faces the underlying patterns display shallow residential "high-low-high" trend curves – but the depth of the 2020 curve (non-adjusted) is nearly flat compared to 2018 (likely impact of COVID-19). A common peak in demand, present in 2018 and increasing by ~6% in 2020, is visible during the 6 to 8pm timeframe across all residential on-street spaces.

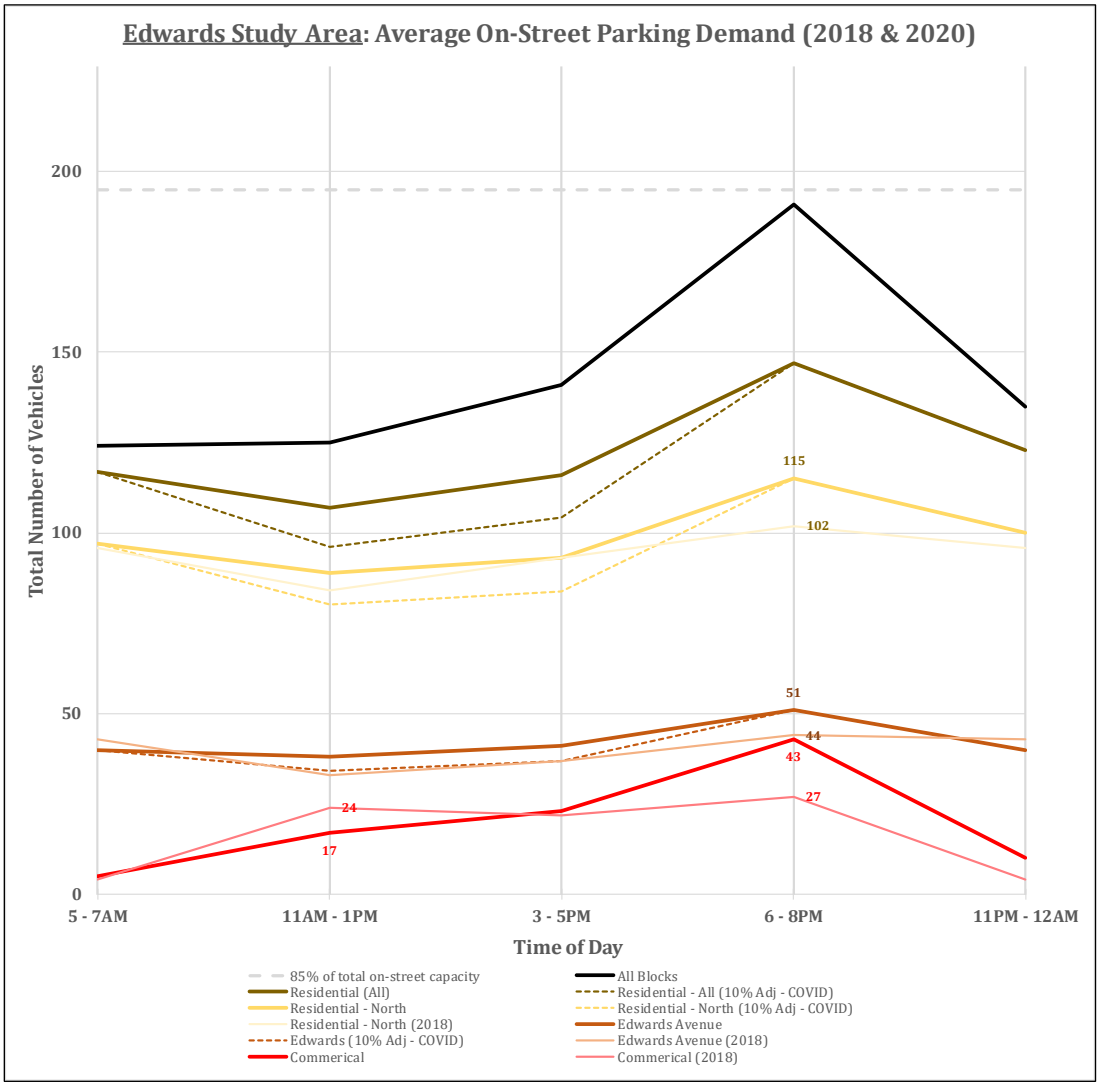

Figure 4: On-Street Demand Model

While the off-street (parking lot) demand model depicts relatively independent patterns, the on-street demand model illustrates a common peak (6 – 8pm timeframe) consistent with expectations for an area where the combination of high density residential in close proximity with a high density of bars, restaurants, and shops results in high demand/competition over public on-street spaces as the separate commercial and residential demand patterns converge and overlap.

With regard to the consist high-demand for residential on-street parking, it should be viewed as positive that the largest average increase (~30%) in on-street peak demand (6 to 8pm) between 2018 and 2020 occurred across the predominately commercial block faces. A smaller average increase (~6%) did occur in residential on-street peak demand, but it was observed across the majority of the study area's residential block faces and cannot be accurately or definitively attributed to "spill-over" of commercial parking from one specific source among the numerous bars, restaurants, shops, or other potential sources of parking demand in the area.

Perspective Three: Resident Dependence on Available On-Street Parking Capacity

The two perspectives presented above have confirmed both the consistent heavier demand for residential on-street parking as well as the increases in peak demand for both commercial and residential on-street parking during the 6 to 8pm timeframe.

An expedient method to accurately discern the "non-resident" proportion within the overall demand for residential on-street parking was not within the capability of this study. However, it is possible to leverage data from county property records, the U.S. Census Bureau American Community Survey (ACS), and observations on the availability and residential use of off-street parking options to produce a block-level estimate of how much residents likely depend on the limited supply of on-street parking. This estimate helps to further inform the last conclusion offered by the 2018 study (cited above in background) as well as enable comparison of the study area against other similar areas of Lakewood where a high-density of commercial uses are found in close proximity to a high-density of residential housing.

Producing the resident dependence estimate follows two basic steps. The first step uses census and property data to deduce a comparative measure of housing density and an estimate of the total number of resident-owned vehicles that are likely to be present on the block. The second step then reconciles that vehicle estimate with the off-street parking options available to residents to determine how many vehicles have no other option other than to be parked on the street. To determine whether a house or apartment has no options, the estimate uses the basic requirements set forth in Chapter 1143 (Parking) of the City Code to analyze conformity: whether each housing unit has dedicated access to a driveway/garage (home) or an off-street space (apartment). The number of housing units that do not have dedicated access provides an estimate of the number of vehicles that have no other option other than to park on the street. This number is then reconciled against the capacity of on-street spaces available to provide the dependence estimate: a percentage of the public on-street spaces that are depended upon by local block residents. High residential dependence (50% or more) can be combined with consistent high observed on-street demand to indicate the likely prevalence of competition among residents for the limited spaces.

This estimate cannot account for all variables. Households could have fewer or more vehicles than the per housing unit average for the census tract (~1.3 vehicles). Additionally, the estimate cannot account for the variety of personal parking preferences that may exist among area residents. During the 2020 study, it is notable that while occupancy of apartment parking lots typically peaked at 100%, use of home driveways to park vehicles along Edwards Avenue averaged 67% and never exceeded 79%.

Select comparative data and the resulting residential dependence estimates are summarized in the below table (Table 3) for select blocks in the study area and comparable blocks in two other similar areas of Lakewood. Within the study area, the select blocks of Edwards and Bonnieview (adjacent to Detroit) show a combination of demographics (high housing/vehicle densities) and residential off-street parking non-conformities (homes without a driveway, apartments without a dedicated space) that produces high residential dependence on the limited number of on-street spaces (53% and 110% respectively). As noted in the above background section, the same block of Bonnieview experienced the highest average demand for on-street parking in the 2018 study.

Table 3: Comparative Estimates of Resident Dependence on On-Street Parking

	Street	Edwards	Edwards	Bonnieview	Ethel	Arthur	Mars	Robin	Lark
	Block	RR to Clifton	Detroit to RR			Madison - Athens		Madison - Thrush	
Block Demographics	Housing Units	75	79	86	44	50	87	35	48
	% of SFH	60%	14%	21%	41%	70%	37%	9%	8%
	% of MFH	40%	23%	14%	18%	4%	30%	51%	17%
	% of Apartments	0%	63%	65%	41%	26%	53%	40%	75%
	Density (Housing Units/Acre)	7	15	17	9	6	12	18	23
	Total Vehicles (Estimate)	93	98	107	54	62	108	43	59
Residential Dependence	Homes (no driveway)	0	0	4	0	0	0	0	0
	Apartments (no off-street space)	0	10	17	0	2	17	9	8
	Vehicles with no off-street option (Estimate)	0	14	29	0	3	23	12	11
	Public on-street spaces available	36	26	26	23	27	32	11	15
	% on-street spaces subject to Residential Dependence (Estimate)	**0%**	**53%**	**110%**	**0%**	**10%**	**72%**	**111%**	**73%**

Comparison with the blocks from the Uptown and Birdtown areas of Madison Avenue confirm that the study area blocks are not unique across broader Lakewood. The comparable blocks show similar (if not worse) levels of residential dependence. This estimate provides an indicator towards the primacy of residential parking competition in many areas of Lakewood where the combination of high density residential housing (the majority built before 1939, per census data) are in close proximity with a high density of bars, restaurants, and shops. Blocks with high residential dependence (estimate of 50% or more) and consistent high on-street demand are likely experiencing a prevalence of competition among residents for the limited public spaces available.

Conclusions

The following conclusions from the above findings are presented:

1. Higher demand for residential on-street spaces and lower demand/inefficient use of commercial off-street (parking lot) capacity existed in 2018, still exists in 2020.

- With an average occupancy rate between 70 to 76%, the on-street spaces along residential block faces experience consistent on-street demand at approximately twice the rate of both the commercial on-street spaces (34 – 38%) – as well as those off-street spaces in parking lots (37%). As highlighted in the 2018 study background above, this level of high residential on-street demand existed in 2018 prior to the project and still exists in 2020.

- The use (or lack of efficient use) of commercial off-street parking lots in the study area is notable. Commercial off-street parking holds over 70% of the study area's total parking capacity, yet only a few parking lots experience occasional heavy demand, while most do not.

2. The peak demand timeframe (6 to 8pm), characteristic of the study area and other areas in Lakewood, saw a larger average proportional increase in commercial on-street demand.

- Like many other areas of Lakewood, the study area is a combination of high-density residential in proximity with a high density of commercial uses (bars, restaurants, and shops). This combination often results in high demand/competition over parking as separate commercial and residential demand patterns converge and overlap during a peak (6 to 8pm) timeframe.

- It should be viewed as positive that the largest average increase (~30%) in on-street peak demand (6 to 8pm) between 2018 and 2020 occurred across the predominately commercial block faces.

- A smaller average increase (~6%) did occur in residential on-street peak demand, but it was observed across the majority of the study area's residential block faces and cannot be accurately or definitively attributed to "spill-over" of commercial parking from one specific source among the numerous bars, restaurants, shops, or other potential sources of parking demand in the area..

3. Blocks with both high residential dependence (estimate of 50% or more) and consistent high on-street demand are likely experiencing a prevalence of competition among residents for the limited public spaces available.

- Within the study area, select blocks of Edwards and Bonnieview show a combination of demographics and residential off-street parking non-conformities that produces high residential dependence on the limited number of on-street spaces. The same block of Bonnieview experienced the highest average demand for on-street parking in the 2018 study.

- The study area blocks are not unique across broader Lakewood. The comparable blocks from the Uptown and Birdtown areas of Madison Avenue show similar (if not worse) levels of residential dependence.

Recommendations

1. Encourage more efficient use of the available commercial off-street parking capacity.

- Encourage (incentivize) the establishment of more shared parking agreements to shift commercial and recreation-oriented demand from on-street to off-street spaces.

- Provide clear wayfinding signage along the Detroit corridor and other streets to encourage and direct business patrons to the appropriate off-street parking facilities. *Example: The Lakewood Dental Arts parking lot, the shared parking location for the Lakewood Truck Park, never exceeded 54% capacity. When the main lot on the 16900 block of Detroit reaches 100% (as it did occasionally), this shared lot on average could have accommodated 10 or 11 more vehicles instead of those vehicles searching for parking elsewhere.*

- Encourage management to ensure maximum capacity of existing off-street parking is provided. *Example: The central area of the main lot on the 16900 block of Detroit was observed to have ~4 vehicles parked consistently for several days. Some appeared in derelict condition and did not move during the entire study period. High-demand commercial lots (primarily serving bars and restaurants) that need to sustain space turnover should not allow derelict or other vehicles to improperly occupy spaces that could be more optimally used by business patrons.*

2. Provide and/or enhance access to, and visibility of, shared mobility (bike/scooter/ride share systems) along the Detroit commercial corridor to reduce dependence on commercial parking.

3. Encourage, whenever possible, the use of residential off-street parking options and the remedying of existing non-conformities.

- Encourage the use and provision of residential off-street parking (driveways, garages, parking lots) in accordance with city code (minimum of 1 parking space per dwelling/housing unit).

References and Notes

[1] Hancock, L. (2020). Northeast Ohio vehicle traffic, which can precede coronavirus spikes, down 20%. (Cleveland.com) Retrieved from: https://www.cleveland.com/open/2020/06/northeast-ohio-vehicle-traffic-which-can-precede-coronavirus-spikes-down-20.html