Mobility Conditions Analysis

Parking & TDM Study

Ann Arbor Downtown Development Authority

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NELSON
NYGAARD

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OVERVIEW

Having inventoried the primary parking, multimodal, and TDM resources available to the DDA and its interest in maintaining optimal Downtown access and mobility, this report analyzes key conditions within these inventories as we begin to address the central question of this study.

Does Downtown have a parking problem?

Before framing the analysis, it is useful to clarify how a parking problem might best be measured/confirmed. That, perhaps, is best done by defining its contrast.

DEFINING SUCCESS

For decades, the DDA has been at the forefront of developing a parking management approach that is specifically compatible with the nature of downtowns and walkable urban centers. Central to its approach has been a set of management principles that reflect a deep understanding of the strengths and liabilities of managing parking in a flourishing downtown.

1. Availability is the primary measure of management success; spaces are available for all who seek them.
2. Availability is not limited to the least convenient options, but is managed, with the aim to maintain reasonable availability among all options and locations.
3. Because parking consumes land and resources that could otherwise contribute to other downtown benefits, it is critical that the users of parking pay its full costs.
4. Because the price of parking is the most direct and effective means of managing demand, by time and location, all parking options will be priced distinctively, based on their relative market demand.
5. Because parking is priced relative to demand, the success of the parking program, which will invariably increase parking demand, will also generate more revenue to either expand supplies or improve/expand management and demand-reduction efforts.
6. Because parking is not necessary to access or move about Downtown, other means of access and mobility will be supported, both for their own purposes and merits in keeping Downtown vibrant and equitable, and for purposes of reducing parking demand where travel by car can be shifted to travel by other means.
7. As demand for downtown access and mobility grows, options to expand parking and/or improve non-driving access/mobility will be evaluated inclusive of measures of cost, effectiveness, and compatibility with maintaining Downtown's distinctive market appeal.

Determining the existence and extend of a parking problem should start with assessing the relative success of parking system in achieving these principles.

Availability

Findings from a series of field observations, stakeholder interviews, and analysis of existing data indicate several shortcomings in the measure of availability.

- Availability is generally constrained during the midday period, particularly at DDA structures, and along most commercial streets.

- ePark meters are particularly constrained, relative to spaces with conventional meters, while pricing is in effect.
- On-street availability is extremely low during evenings, particularly but not limited to Friday and Saturday nights.
- Wait list data and stakeholder input speak to chronic lack of access to monthly parking permits, which directly affects the appeal of Downtown employment among those who strongly prefer driving, or have little to no good alternatives.

These constraints, however, are limited to specific types of parking and aspect of availability (on-street, monthly, preferred locations). Findings, in fact, do not confirm a general absence of parking options, even during common periods of elevated demand. In fact, several stakeholders stated flatly that, those who know the system can always find somewhere to park; most notably free parking options in the surrounding residential neighborhoods Clearly, however, there is room for improvement in terms of both maintaining access to on-street parking during evenings and weekends, and in the capacity to accommodate auto-commuters willing to pay the going rate for a monthly permit.

Parking Pays for Itself

Not only does revenue from the DDA parking system fully sustain the system, it helps fund a growing list of mobility improvement programs, which in turn help to moderate parking demand.

Pricing

In general, pricing appears to be used to good effect in making parking options available across Downtown at most times. Rates reflect demand patterns and preferences, including variations between on- and off-street parking, and among various off-street options. Keeping rates in line with demand, however, is an ongoing process. And, given some of the availability constraints noted above, some rates appear to have fallen behind demand. The most glaring short-coming in realizing this principle is the lack of pricing during common, peak-demand periods, among high-demand parking assets.

Revenue

The DDA approach not only provides precedent for using pricing to manage demand to increase availability where it is currently constrained, it provides a source of revenue for proactively and strategically addressing constraints. Key, strategic rate increases, including the extension of meter hours into evenings and higher rates for parking permits, would not only help bring demand in line with available supplies, it would also provide more revenue to fund potential supply-expansion projects and/or mobility improvements and TDM efforts. This creates a virtuous cycle, in which increased demand generates funding to provide increased accommodation/management.

Demand Management/Reduction

Using this revenue to invest in demand-management and demand-reduction strategies (collectively known as Transportation Demand Management, or TDM) allows the DDA to address availability constraints more equitably, while supporting Downtown's multimodal vitality and preserving Downtown real estate from rash supply expansions. Just as importantly, it allows the

DDA to forestall parking rate increases. The ongoing success and remarkable achievements of the getDowntown program indicate that this aspect of the DDA's approach continues to excel.

Evaluating Best Fit Options

Continuing and expanding upon this TDM success is one of the central aims of this study — to identify demand-management and demand-reduction strategies so that current and future success does not overly depend upon supply expansions and/or rate increases. The fact that this is a central component of the DDA's parking approach is reflected in the input from Downtown stakeholders. While many stakeholders stated frustration with certain aspects of Downtown parking, there was strong consensus that "being Downtown" was worth it, in large part because businesses can thrive on less parking with the help of the getDowntown program and the value provided by the go!pass. Similarly, developers can provide housing with less parking because people want to live Downtown, and because many of those who want to live Downtown want to do so because it doesn't require a car.

This is a testament to the success of this aspect of the DDA's parking approach, one that has allowed Downtown residential and employment growth to significantly outpace expansions of parking supply.

DOES DOWNTOWN HAVE A PARKING PROBLEM?

So, the answer to this question has to be a qualified Yes. More accurately, Downtown has a few parking problems. More importantly, it also has an approach to addressing such problems that has proven to be remarkably successful. Essential to this success has been avoiding the typical assumptions about how to make parking problems go away.

Rather, these problems will be addressed by reviewing them in detail (below), then assessing if they are likely to get better or worse in the coming years (the focus of the next study phase), and finally developing "best fit" strategies for addressing them in a new Parking Management Plan.

The following analysis initiates this process by:

- Further defining current parking conditions, including the constraints noted above;
- Identifying conditions within the multimodal network that will affect its capacity to absorb potential shifts of travel demand away from driving and parking;
- Examining the effectiveness of ongoing TDM programs and activities, and their potential to facilitate these shifts;
- Identifying travel patterns, relative to the multimodal network to better measure the population of travelers who might be susceptible to mode shifts away from driving; and
- Assessing current Parking Management practices for change opportunities that could address current and projected constraints.

INTRODUCTION

Figure 1 Bus Shelter Announcements for Expanded Service

The following sections present an overview of key conditions among downtown's primary parking and mobility resources, as identified in the previous study phase. Despite Downtown's position as the center of an impressively robust multi-modal network, its parking resources are frequently strained during peak-demand periods. The analysis below is therefore focused on the details of where, when, and to what extent parking supply constraints exist, and what aspects of the multi-modal network may have capacity to provide relief, by accommodating a greater share of future travel demand.

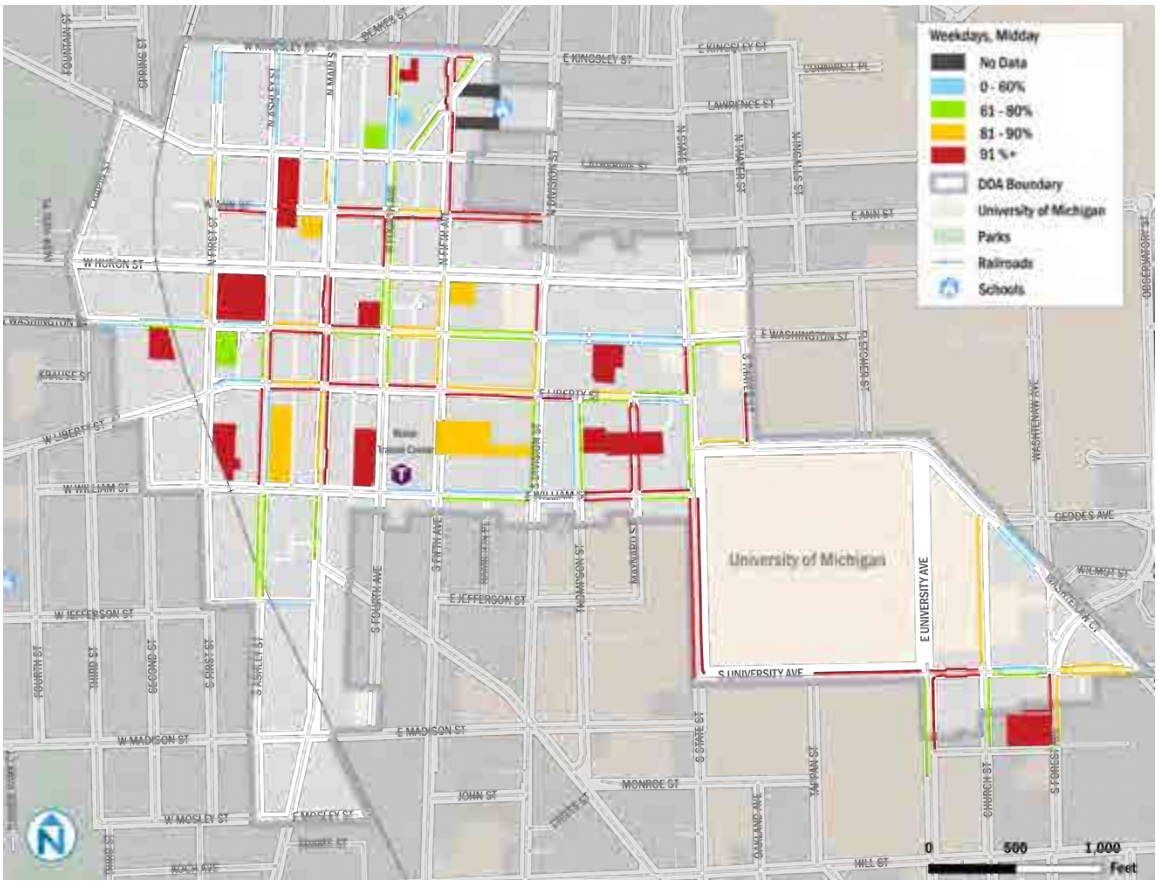
PARKING UTILIZATION

OVERVIEW

Parking occupancy data was collected, through a combination of data from the DDA's real-time availability system and late-September field surveys. Key findings from this data are presented below to assess supply and demand conditions within Downtown, with a particular focus on where and when demand levels constrain available supplies, or demand patterns obscure available parking options.

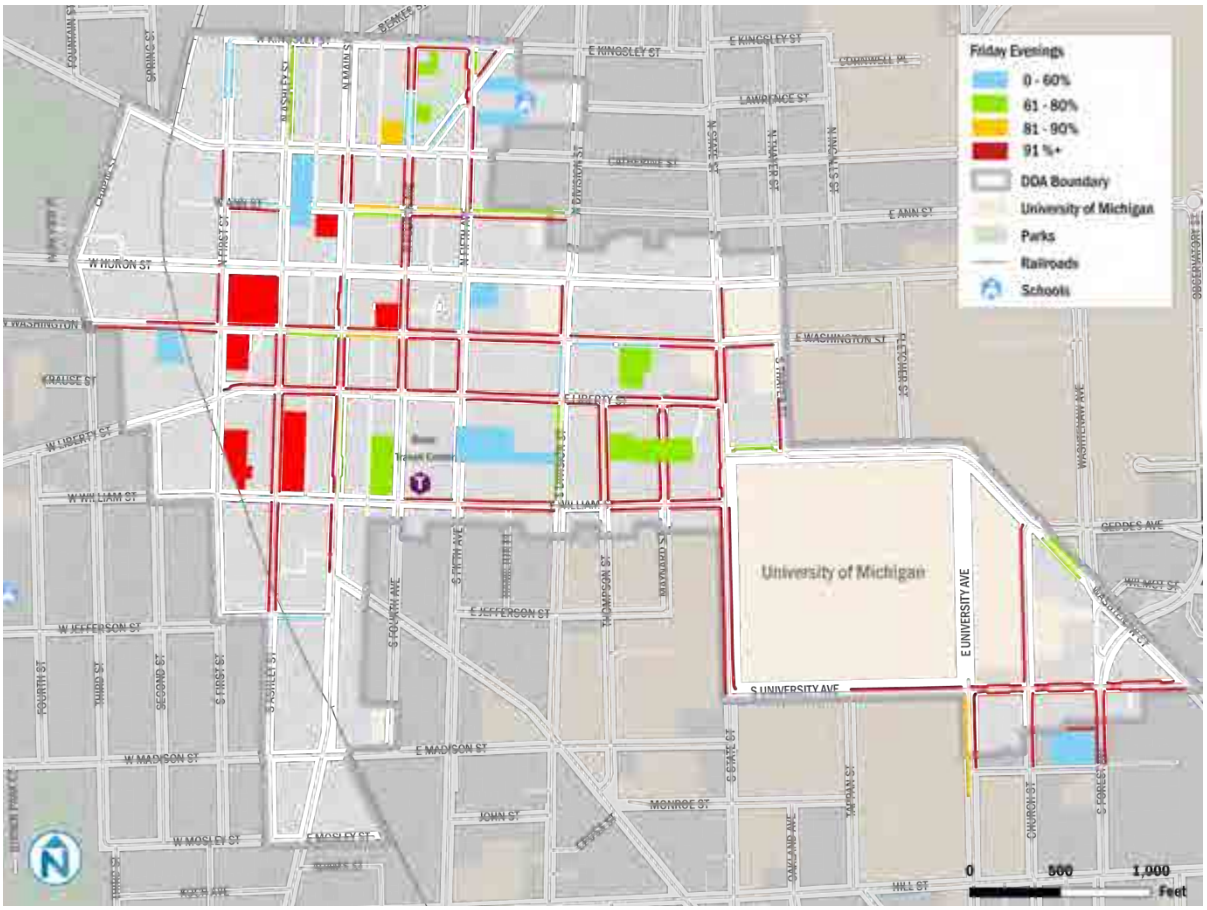
The maps below present peak-hour conditions across off- and on-street parking resources, to provide an overview of current demand/supply balance and patterns at these times.

Figure 2 Parking Utilization – All Facilities – Weekday, Midday



Data Sources: Field Collection September 2015, DDA, City of Ann Arbor, Washtenaw County GIS

Figure 3 Parking Utilization – All Facilities – Friday Evenings



Data Sources: Field Collection September 2015, DDA, City of Ann Arbor, Washtenaw County GIS

As shown, several, clear points of constraint can be identified during these peak-demand periods.

Weekdays

- Availability is generally constrained during the midday period, particularly at all DDA structures, and along most commercial streets.
- This includes hourly-parking off-street facilities, as well as those primarily serving monthly-permit customers.
- On-street constraints follow patterns revealing corridors, and s ub-areas, of high demand.
- On-street constraint patterns also likely reflect a strong preference for ePark meters, and their capacity to take credit-card payments, over conventional meters.

Evenings

- Availability among on-street spaces is quickly absorbed by demand, once these spaces become free (6PM).
- This is particularly pronounced on Friday evenings, but constrains access to these parking options even on a Monday night.

- The general preference among visitors for on-street parking is particularly pronounced during evenings and weekends.
- This is certainly exacerbated by the fact that most off-street options carry a cost, while on-street parking is free.
- Nonetheless, availability is frequently constrained at several, off-street facilities during evenings, particularly in the southeast section of downtown, an area where several performance-venues and other nightlife destinations are concentrated.

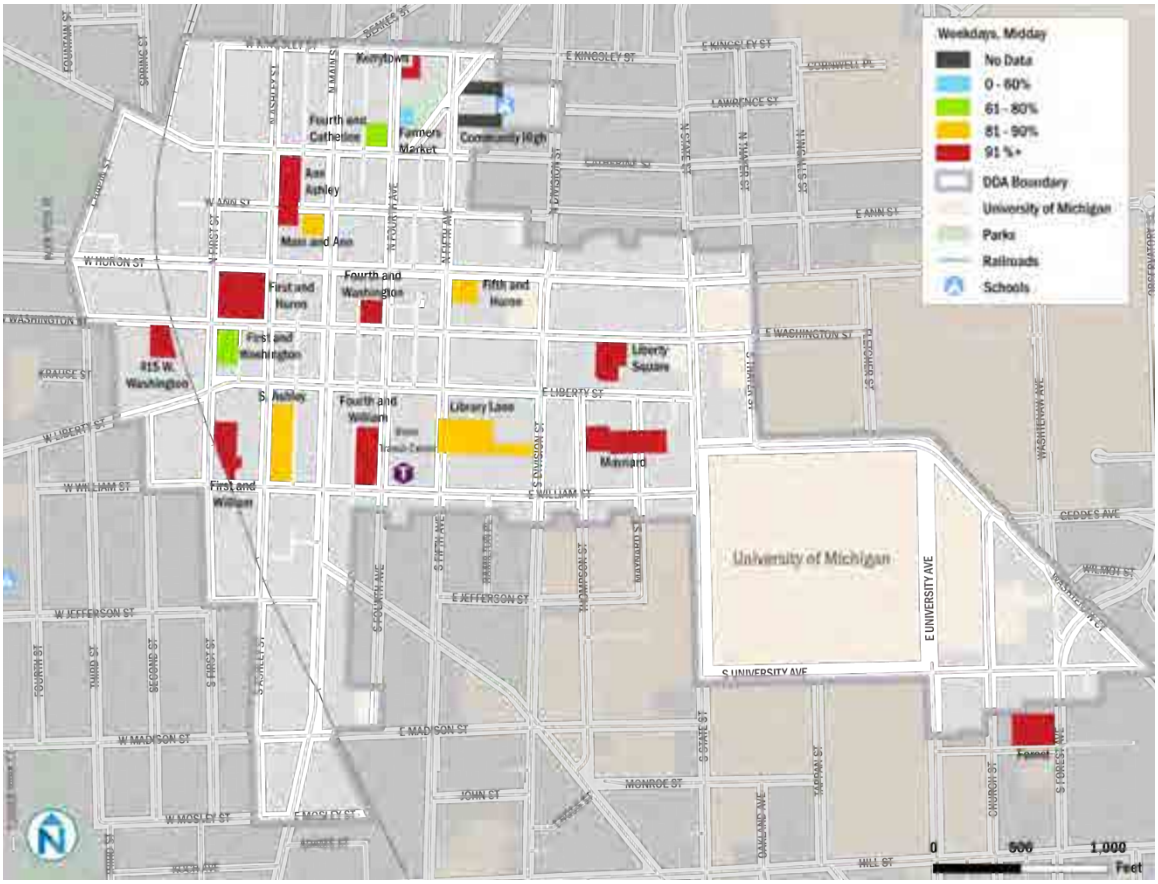
Following is a more detailed review of conditions within key sub-inventories and parking markets.

DDA STRUCTURES AND LOTS

Weekday Peak

The map below presents utilization conditions across DDA structures and lots during the weekday peak, around the midday lunch hour. This is a critical period of overlapping demand, when commuter parking is at peak levels, while the lunch-hour also generates significant visitor-parking demand. At these times, all parking options are priced, making this a critical period for assessing the effectiveness of current parking rates.

Figure 4 Off-Street Parking Utilization – Weekdays, Midday



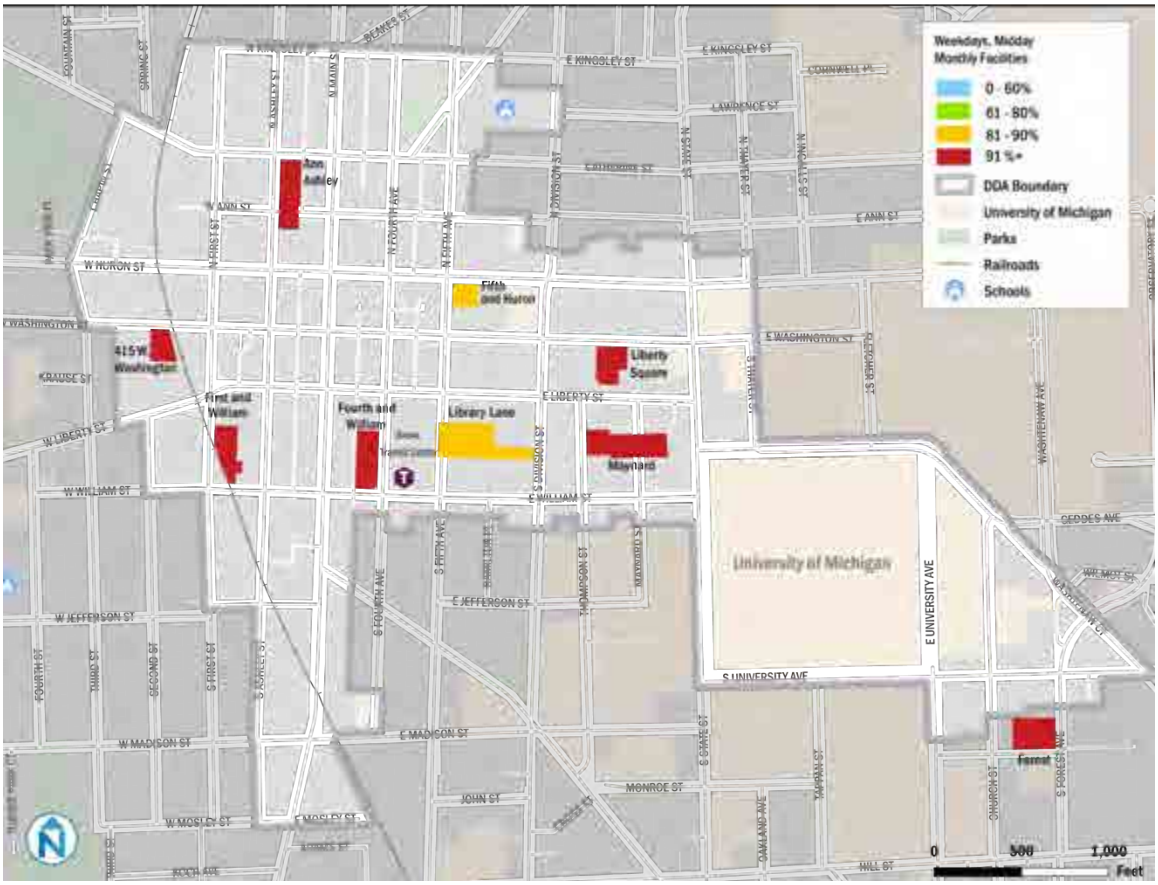
Data Sources: Field Collection September 2015, DDA, City of Ann Arbor, Washtenaw County GIS

As shown, many off-street facilities are effectively full (91%+ utilization) during the midday and the majority of those that are not, are approaching full. Those that offer significant capacity are generally located along the periphery. These options tend to be particularly less appealing to visitors who intend to spend just an hour or two in downtown, unless they happen to be near their primary destination. Of particular concern is the lack of capacity at commuter-oriented facilities, as this underscores the level of constraints that have led to long wait lists for permits across downtown.

Commuter Parking Facilities

One of the conditions that could potentially affect downtown businesses, and business attraction, is the inability to purchase monthly permits, the preferred option among auto commuters to Downtown. The lot at 415 W. Washington provides commuter-parking overflow, with a modest daily rate, but this facility, too has become constrained with demand. Recent interviews with several downtown employers indicate that, even among employee populations that have generally embraced cycling and transit, there remains a need to accommodate those for whom these options do not work.

Figure 5 Utilization of Commuter Parking Facilities, Weekdays, Midday



Data Sources: Field Collection September 2015, DDA, City of Ann Arbor, Washtenaw County GIS

The map above, however, confirms that there is little to no capacity to offer more monthly permits. The majority of downtown office employers surveyed indicated that the downtown location was top priority for their business. Parking availability and cost were secondary but still a

significant issue to many, reinforcing the relevance of the lack of monthly permits. Focus group comments suggested that most companies had been able to acquire parking permits or make alternative parking arrangements when it was really critical. However, current waitlist times made them concerned about future permit availability and business expansion. The focus group discussion also suggested that the culture of the organization, the options available to employees, and the offering of parking permits significantly affected an employee's commute pattern. Employees who received fully subsidized parking drove, while those employees who were more connected to the cost of their commute (i.e. paid for it themselves) explored alternatives. Companies who had access to permits upon first locating downtown were less likely to try alternative options than those who had to wait before obtaining a permit. As a result, some downtown employees did not know about alternative commute options.

Hourly Facilities

The DDA also manages several off-street facilities as short-term parking resources, primarily to complement on-street parking. These spaces are slightly cheaper than on-street spaces, and accommodate longer durations. The following table identifies off-street facilities that are managed as hourly parking resources.

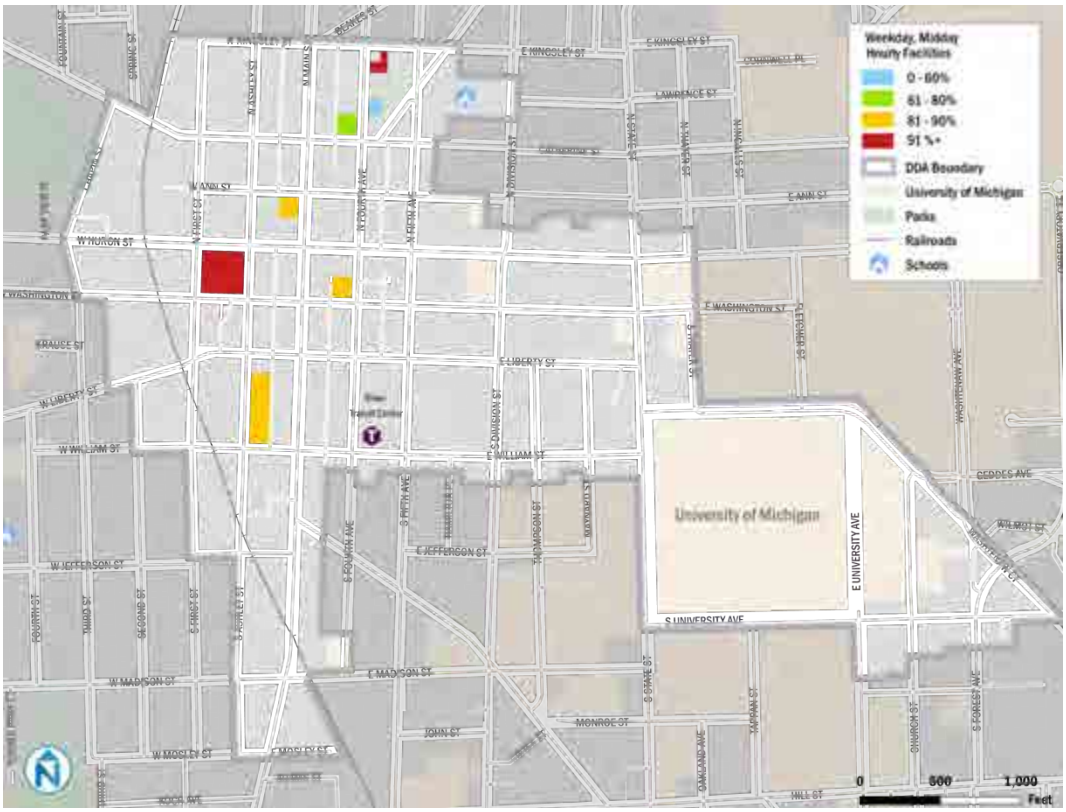
Figure 6 DDA Off-Street Facilities Dedicated to Hourly Parking

Facility	Spaces
Kerrytown Lot	25
Farmer's Market Lot	75
Fourth and Catherine Lot	49
Main and Ann Lot	46
First and Huron Lot	168
S. Ashley Lot	138
Main and William Lot	21
Fourth and Washington Structure	281

Sources: DDA, Republic Parking

The map below presents utilization conditions among these facilities during the weekday, midday period. While some of the smaller lots (e.g. Farmer's Market Lot and Fourth and Catherine) have available spaces, most are approaching capacity.

Figure 7 Utilization of Hourly Off-Street Parking Facilities – Weekday, Midday



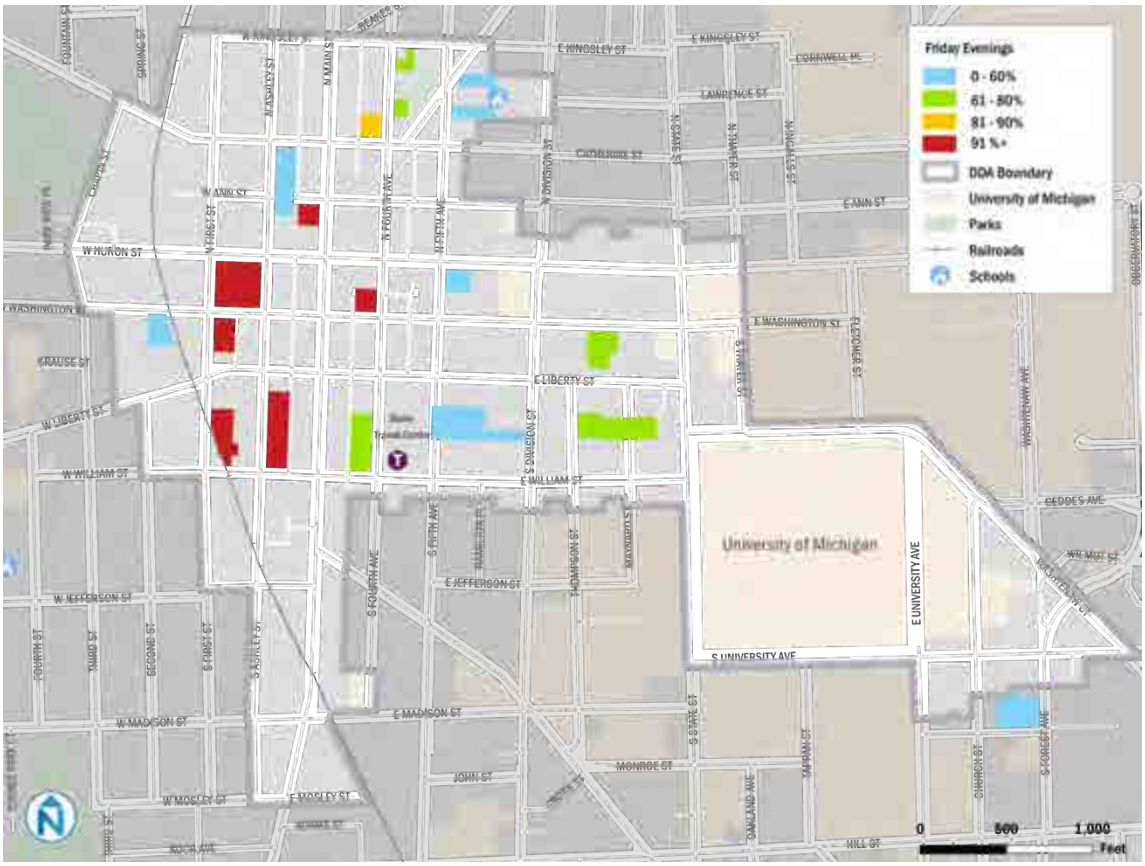
Data Sources: Field Collection September 2015, DDA, City of Ann Arbor, Washtenaw County GIS

Friday Evening

As is typical of most downtowns, evening and weekend demand in Ann Arbor has demonstrated a strong preference for on-street parking. Among off-street options, there has been a strong preference for lots over structures, with the result that the DDA's structures have tended to retain ample availability at these times. However, as food, drink, and entertainment venues have expanded in number and popularity in recent years, evening parking demand has grown significantly, to the extent that even some large structures have begun to experience availability constraints at night and on weekends.

The map and text below summarize findings from Friday night occupancy surveys, conducted to quantify peak, evening conditions among the DDA's lots and structures within this context of expanding evening demand.

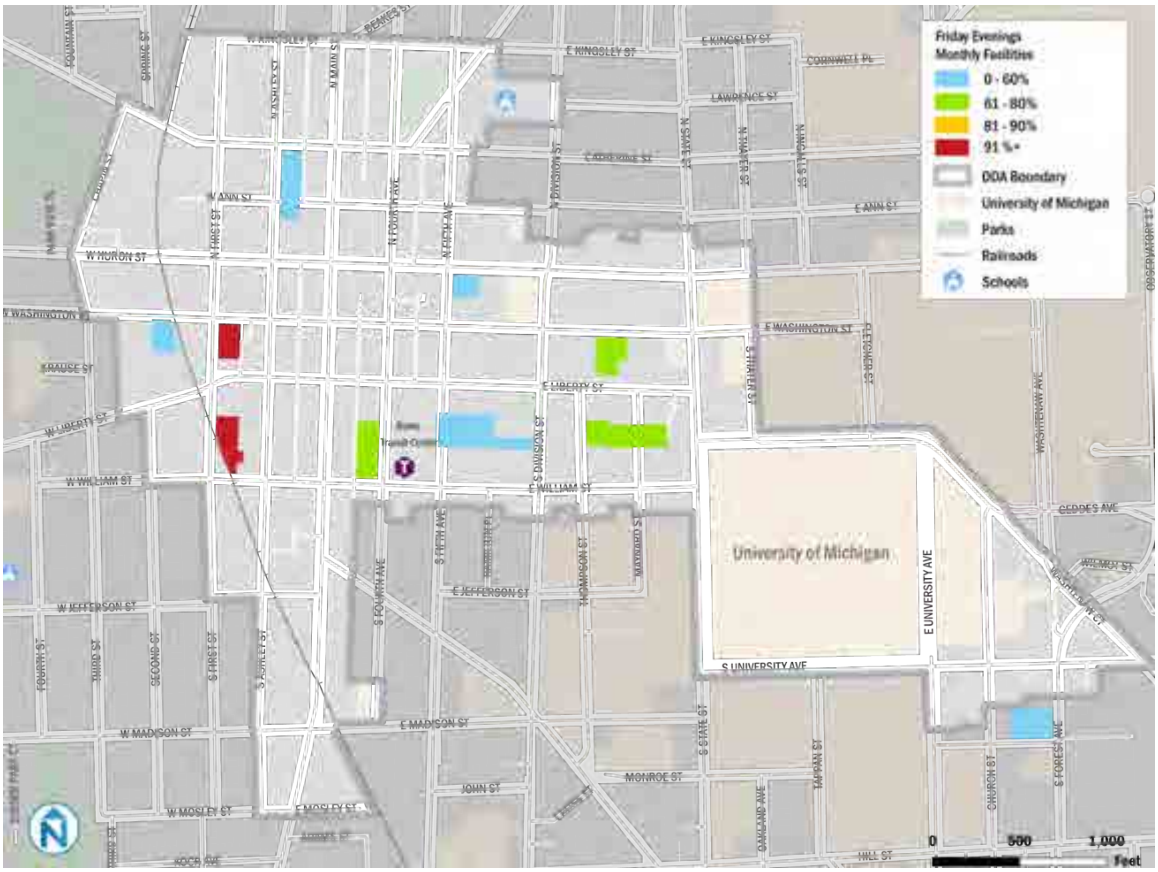
Figure 8 Off-Street Parking Utilization – Friday Evening



Data Sources: DDA, City of Ann Arbor, Washtenaw County GIS

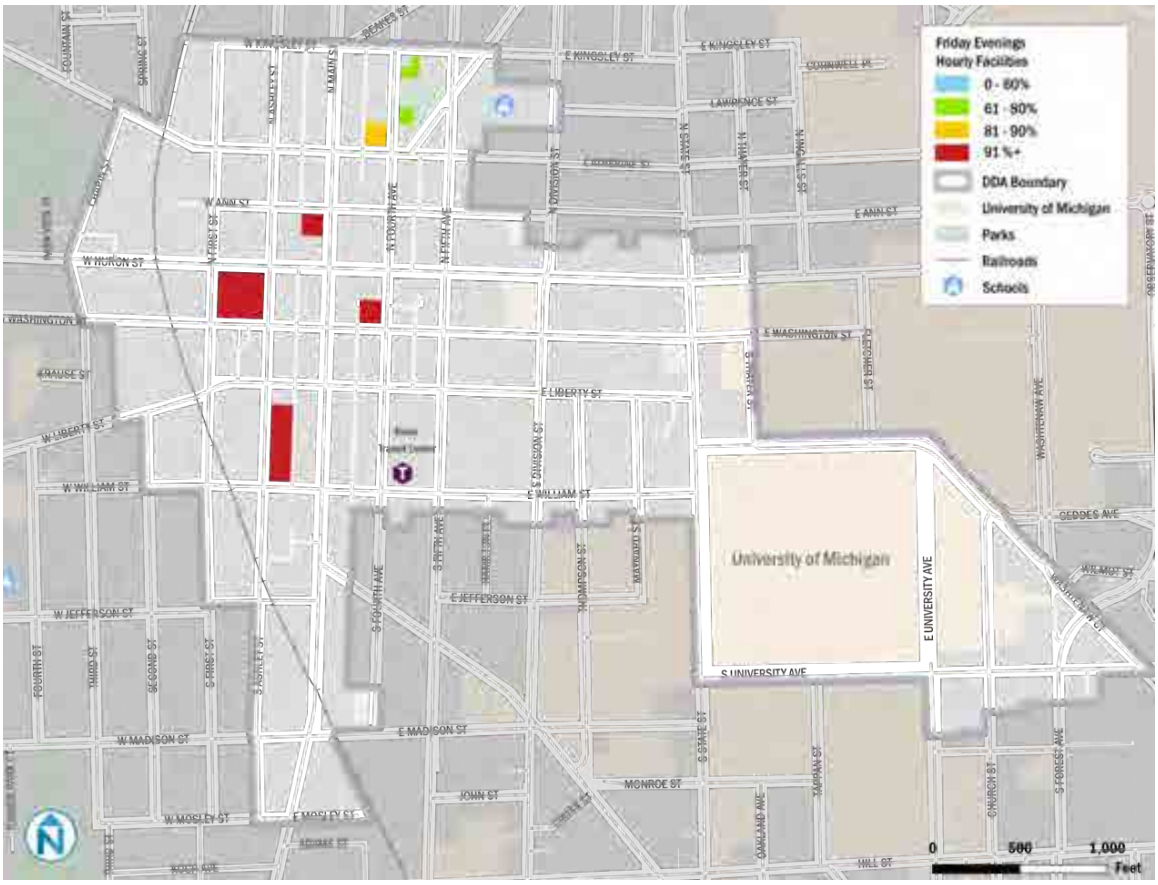
Parking lots and structures along Main, Ashley, and First streets are effectively full during the Friday evening time period, likely highlighting this area's concentration of restaurants and bars. Interestingly, several other structures throughout downtown have significant capacity at these times, including several facilities that are primarily commuter facilities during the daytime. The maps below present the contrast in utilization levels between these facilities, and those that are primarily hourly parking during the daytime.

Figure 9 Utilization of Commuter Facilities, Friday Evenings



Data Sources: DDA, City of Ann Arbor, Washtenaw County GIS

Figure 10 Utilization of Hourly Off-Street Lots – Friday Evening



Data Sources: Field Collection September 2015, DDA, City of Ann Arbor, Washtenaw County GIS

These maps indicate a significant turnover among the populations generating parking demand in downtown. As commuter facilities are emptying out, hourly lots appear to attract the early waves of demand, and quickly begin to fill to capacity. Much of this likely reflects the continued preference for surface lots over structures, as well as the "flat rate" fees for evening parking offered at some popular lots. This also parallels a shift in evening activity toward the west, where the concentration of evening-based destinations has created a new locus of parking demand in the after-work hours.

ON-STREET

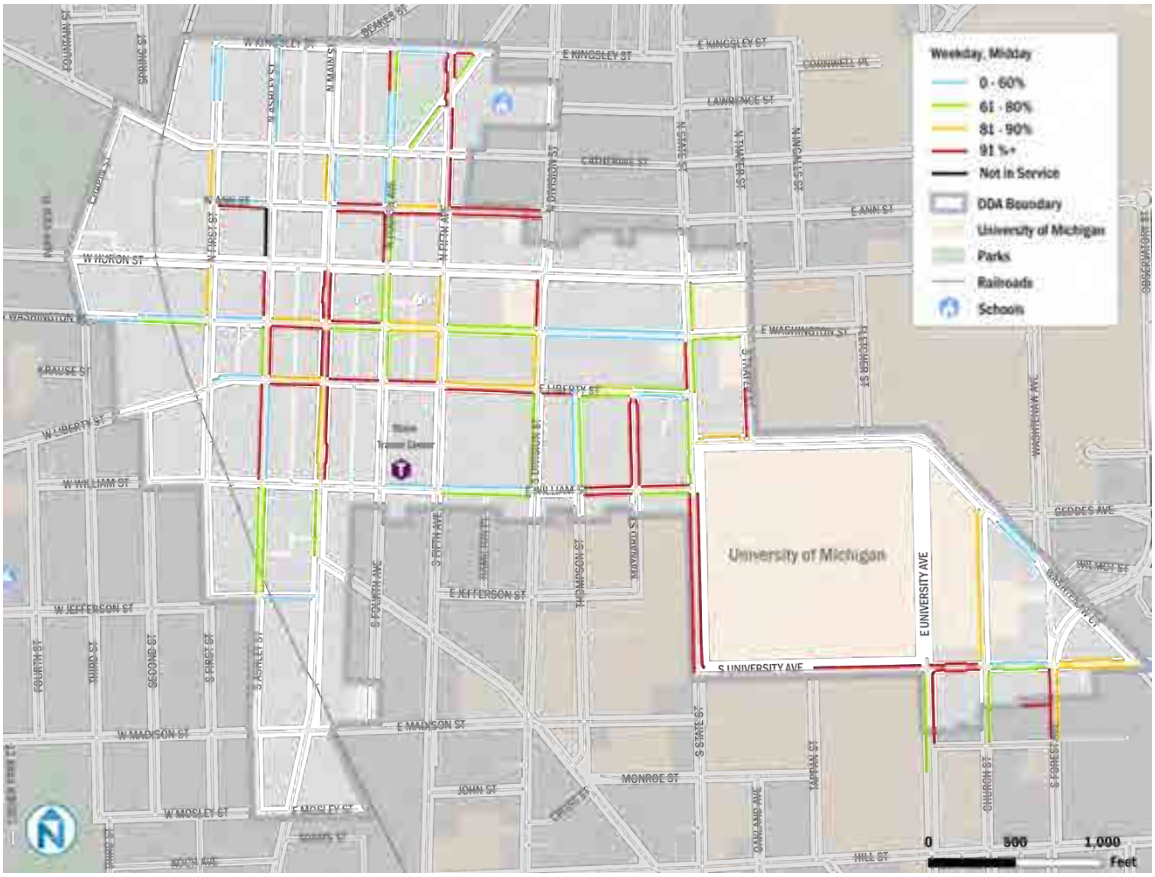
On-street parking is consistently the most strongly-preferred option among drivers seeking short-term parking in any downtown. And downtown Ann Arbor is no exception. As such, utilization measures among on-street supplies, during peak-demand periods, provide the best measure of how accessible downtown is for drivers looking to stay for a few hours or less.

Weekday Midday

Field surveys of on-street spaces during the weekday, midday peak reveal high utilization levels along most commercial streets, and availability constraints along many (those streets marked in

red in the map below). Pockets of high-demand/reduced-availability, in fact are apparent within the four traditional downtown sub-districts: Main Street, Kerrytown, State Street, and South University. In the gaps between these areas, several blocks of significantly lower utilization can be found.

Figure 11 On-Street Parking Utilization – Weekday, Midday



Data Sources: Field Collection September 2015, DDA, City of Ann Arbor, Washtenaw County GIS

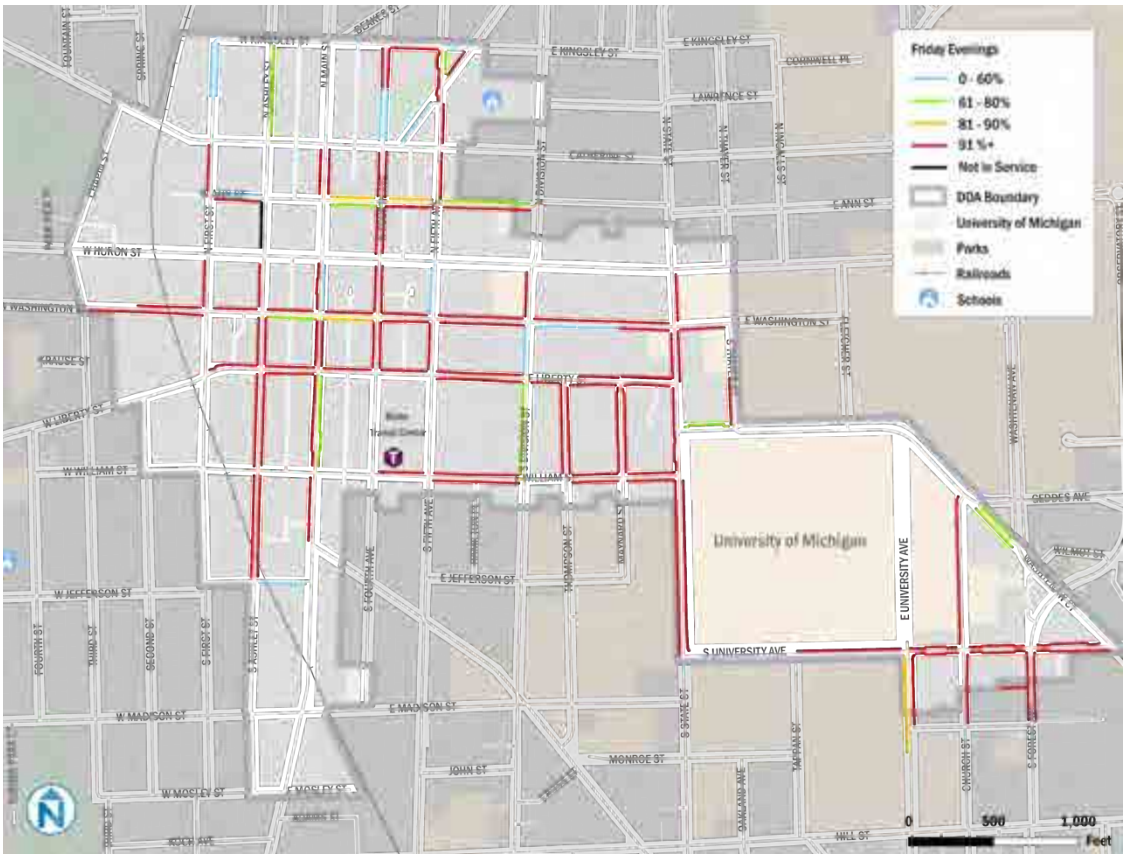
While, in aggregate, there are dozens of empty parking spaces available, these clustering patterns of constraint and availability likely make finding a space a frustrating experience. This tends to be particularly true when the price for all spaces is the same, as there is no incentive for drivers to start their parking search on "side" streets like Division or Thompson, or on secondary commercial streets like Washington. Those that are most familiar with downtown are likely to know these options well, but the bulk of drivers are likely to start looking for parking on the street with which they are most familiar, creating congestion and constraint in predictable patterns.

Friday Evening

Ann Arbor has long been a regional destination for evening and weekend activities. And, as the downtown commercial economy continues to increasingly focus on food, drink, and entertainment destinations, parking-demand intensity is growing even stronger at these times. Adding to this demand, specifically for on-street parking, is the fact that meter-enforcement ends at 6PM.

This is precisely when demand at restaurants starts to pick up. As such, restaurant, pub, and club employees tend to start arriving for evening shifts just prior to this, allowing them to pay for an hour of parking, and remain in place for the rest of the night. Given these factors, it is unsurprising to find that Friday night is possibly the worst time to try to find on-street parking, anywhere in downtown.

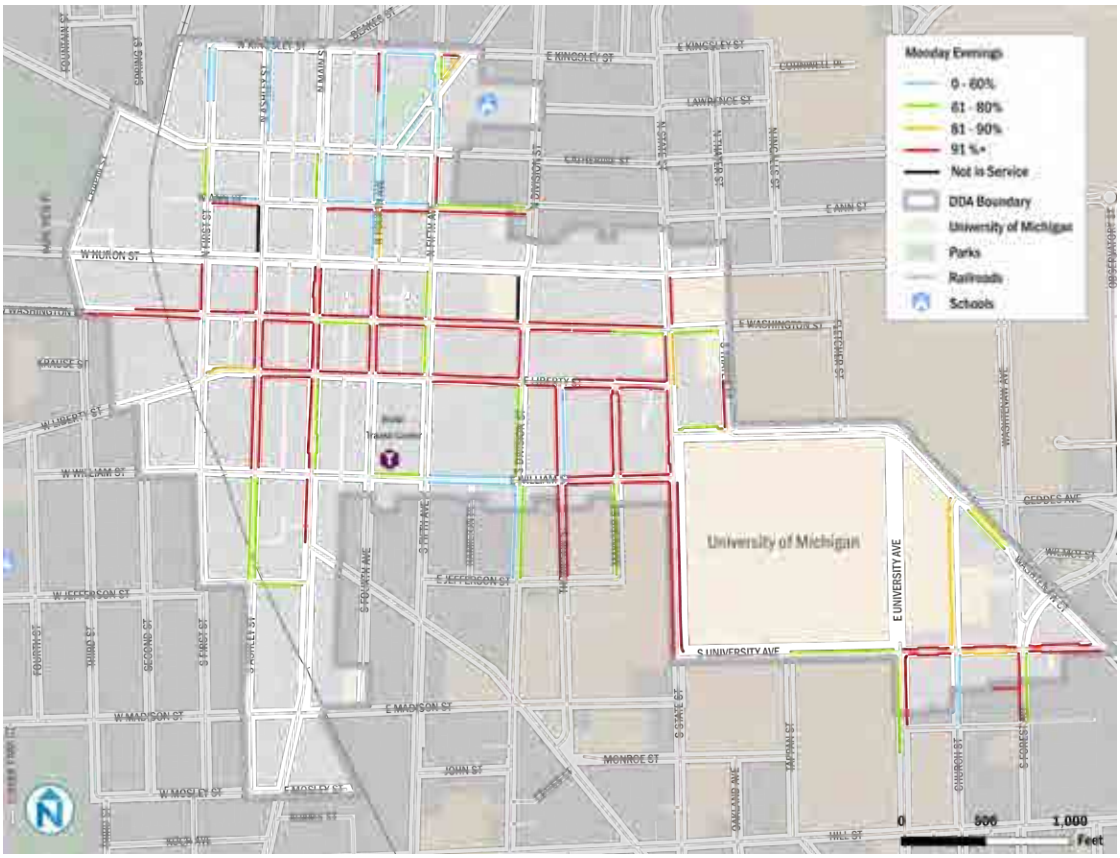
Figure 12 On-Street Parking Utilization – Friday Evening



Data Sources: Field Collection September 2015, DDA, City of Ann Arbor, Washtenaw County GIS

The same factors, however, also reduce availability to chronically low levels during other evening periods as well. To quantify this, field surveys were conducted on a Monday evening. As shown below, availability is improved compared to Friday night, but remains elusive throughout much of the downtown core.

Figure 13 On-Street Parking Utilization – Monday Evenings



Data Sources: Field Collection September 2015, DDA, City of Ann Arbor, Washtenaw County GIS

Impact of ePark Meters

Utilization

The impact of ePark meters on demand patterns is perceptible as one travels around downtown, particularly if looking for an available ePark space. Not only do these spaces tend to be more centrally located within downtown, but they are the only option that most drivers know of to pay for on-street parking with a credit card.[1] To help quantify the impact of these meters on utilization patterns, the table below presents average utilization levels among ePark spaces, compared to the same among conventionally-metered spaces.

Figure 14 Occupancy by Meter Type

Meter Type	Weekday, Midday	Friday Evening
ePark	110%	102%
Conventional	68%	95%

As shown, daytime utilization measures reify the casually observable disparity between these two on-street meter options, with a 42 percentage-point difference in occupancy. A significant factor

[1] There is a mobile-phone payment option, but it is not widely known or used.

in this is the locational "advantage" of the average ePark space. However, evening surveys indicate that the daytime utilization gap closes significantly, when the locational differences remain the same, but the need to pay for parking has been removed. This indicates that much of the daytime preference for ePark spaces is tied to the option to pay for parking with a credit card, rather than coins.

Revenue

Data on average meter transactions at ePark spaces also reveal a significant impact of this credit card option on parking revenues, and what the average driver is willing to pay for convenient, on-street parking in downtown. Data on average transaction revenue indicate that meter payments made by credit card are nearly twice as large as those made with cash/coins. In July 2015, the revenue/transaction rate among all ePark meters was $1.18, the equivalent of ~45minutes worth of parking. For the same month, the revenue/transaction rate was $2.34, about 1 ½ hours worth of parking and nearly exactly twice the rate for coin-based transactions. This indicates the impact that the convenience of paying by credit card can have on what drivers are willing to pay for parking.

VISITOR PARKING

Visitor parking options are generally widely available during weekday morning hours. On-street spaces generally have significant availability until midday. And, after 10AM, several spaces become available for hourly parking in each DDA facility. By midday, availability becomes constrained in most lots and garages, and among the most popular on-street blocks. This is likely to create much frustration among visitors, especially those least familiar with the location of alternate parking locations, and those least comfortable with parallel parking.

It is clear, however, that weekday pricing of these spaces does help preserve availability at these times. This is made most clear by just how rare empty on-street spaces become, shortly after 6PM, when meter enforcement ceases. The frustration of this experience is exacerbated by the fact that parking structures, which do offer plenty of availability on most nights, are priced at these times.[2]

Drivers who fail to find a free parking space on-street or in a lot, find that their best option is paying to park in a location they find much less preferable. In this sense, the "good will" gesture of turning meters off at night, helps to make these high-demand spaces much less available to visitors. Ironically, turning the meters off at 6PM makes it easier for Downtown employees to make extended use of these spaces, particularly among employees arriving for evening shifts, just prior to the first rush of evening visitors. For a few quarters, these employees enjoy unlimited use of Downtown's most valued parking spaces for the night.

COMMUTER PARKING

This is a clear area of constraint within the DDA parking system. However, it is a constraint that is both more complicated and less severe than if might first appear. There are wait lists for permits at all facilities that offer monthly parking. And, several employers and employees noted the lack of access to monthly permits as a significant source of frustration.

[2] Sundays are an exception to this, as on-and off-street parking are free.

However, most companies engaged as part of this study acknowledged that they were able to secure sufficient quantities of permits to meet the needs of those commuters who most wanted them. Frequently, the location of the permits offered did not meet the preferences of the commuters seeking them, but most companies have been offered some permit when they needed them. Furthermore, several employees noted that they were able to find alternatives to the DDA parking system, often by making arrangements with owners of private lots.

Impact of Parking Benefits

One factor that complicates the effectiveness of pricing to manage permit demand is the still-common practice of employers and building owners/managers covering some or all of their employees'/tenants' parking costs. These subsidies are essentially provided as an employee benefit offered to attract job applicants, or a housing or office-space amenity meant to attract tenants. The effect of price on demand for monthly permits is skewed by this practice, with increased rates affecting some customers directly, and some not at all.

This reduces the "elasticity" of rate changes, dulling the impact of rate changes on demand. As a result, rate changes must be greater to have the desired impact on demand — reducing peak occupancies enough to begin selling monthly permits, for example — than would be required if all customers paid the full cost of their parking. This puts even more burden on those paying the full cost of their parking, creating a strong sense of inequity, as expressed by many of the stakeholders engaged during this study.

RESIDENTIAL PARKING

It has become increasingly common among these projects to provide private, on-site parking, with some offering two spaces per residential unit despite the high construction cost of these spaces. This relieves pressure on the DDA system, particularly as many residents leave their cars parked most of the time, using them mostly during off-peak times. "Around the clock" occupancy is a poor fit for most DDA facilities, which rely upon turnover to accommodate the needs of diverse Downtown stakeholders. In many ways, on-site facilities are a better fit for parking that is more akin to "car storage".

Better still is for this demand to be accommodated in a "hybrid" facility, such as 1st and Washington, which provides on-site parking for upper-floor residents, and overflow parking that is publicly available. If more such structures can be developed, effective, resident-focused TDM strategies can help increase the level of public parking offered at each. Thus, developer over-supply can be transformed into an asset for meeting the parking needs of visitors and commuters.

ADDITIONAL SUB-MARKETS

Short-Term Parking within Monthly Facilities

To leave parking spaces available for downtown visitors and customers, the DDA disallows parking on the first few levels of its parking structures until10AM. This allows these spaces to remain empty until after the morning commuter rush is over. Weekday field observations of these spaces, as well as brief interviews with on-site staff, indicate that, by and large, parking customers respect these restrictions.

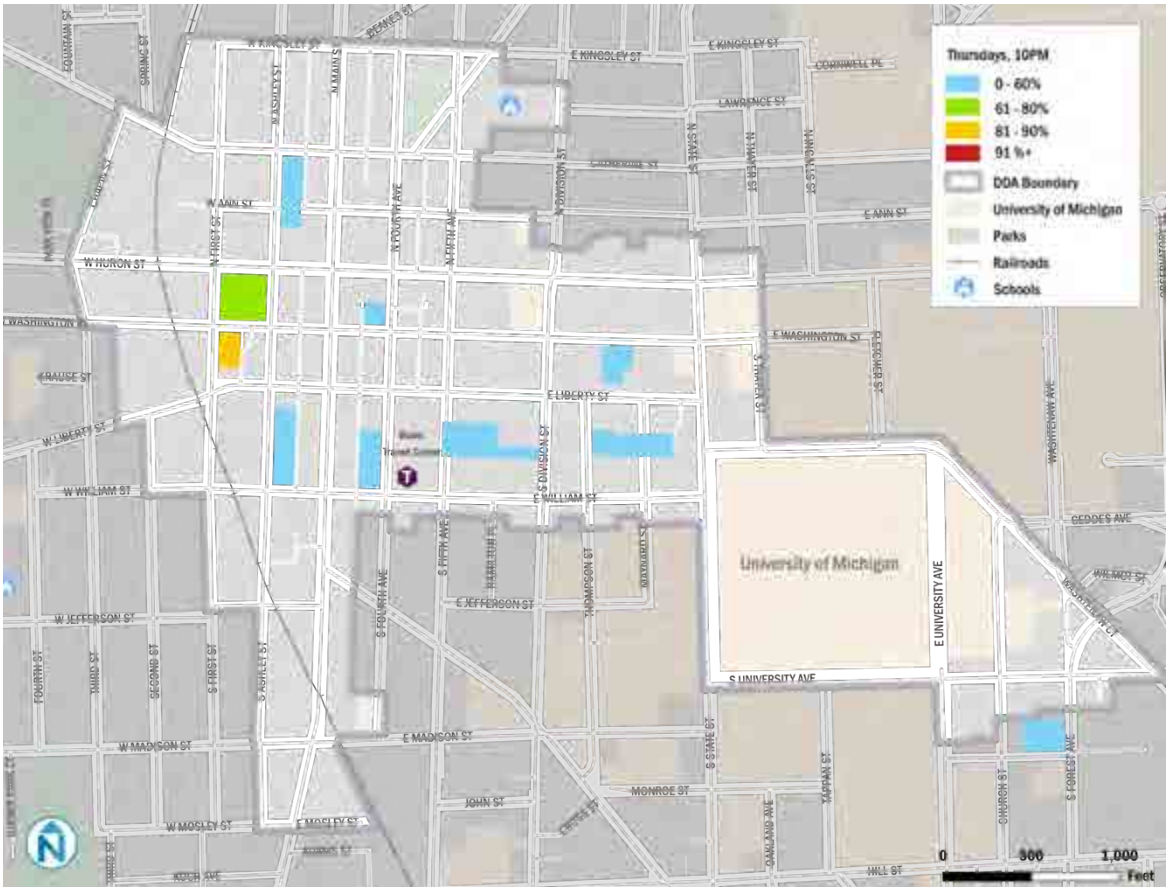
Field observations found only about 10 cars in these restricted spaces across the entire downtown. Enforcement officers tend to check these spaces close to 10am, so the potential to "get away with" parking right before 10am is slim. Parking attendants also said that they would warn violators if they were seen parking in the spaces before 10am and the accessibility of the restricted spots make violators' cars obvious to those doing inspections.

After 10am, the restricted spaces quickly fill up. By 11am, they were observed to be at least 75% full across the downtown. Attendants interviewed confirmed that this was characteristic of these spaces on a typical day. By Noon, these spaces are usually completely full.

Overnight Permit Parking

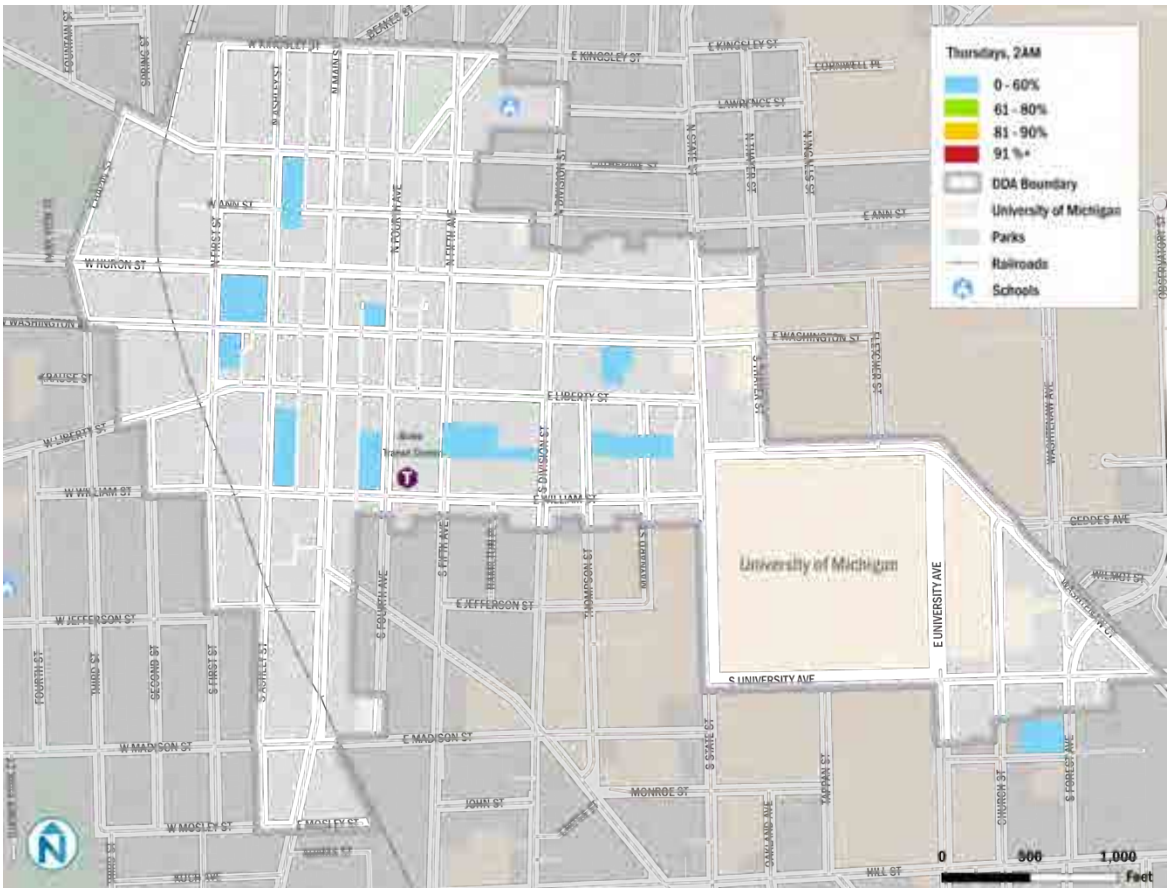
The DDA offers overnight permits to provide a discounted parking option for residents who do not need daytime parking, and for evening/late-night employees. These permits make good use of excess capacity in DDA structures during late-night and overnight periods. The maps below confirm that excess capacity remains at these facilities during the peak use periods for these permits.

Figure 15 Late-Night Utilization (10PM)



Data Sources: DDA, City of Ann Arbor, Washtenaw County GIS

Figure 16 Overnight Utilization (2AM)



Data Sources: DDA, City of Ann Arbor, Washtenaw County GIS

While this indicates significant, remaining capacity to accommodate more parking demand during the overnight period, the limitations of the overnight permit restrict its usefulness to a small subset of Downtown employees and residents. Most residents require some form of daytime parking accommodation, which adds to the midday demand peaks on most weekdays.

Farmers Market

The Wednesday and Saturday Farmers Markets create intense parking demand conditions within the Kerrytown area of downtown. Visitors, residents, and vendors all converge on the small parking lot at the Kerrytown shops and overwhelm the available parking and loading space. Already a thriving area of shops and restaurants, this has a significant impact on parking availability on the surrounding blocks, and several off-street facilities, including:

- 4th and Catherine Lot;
- Kerrytown Lot;
- Farmers Market Lot;
- Community High School Lot (Saturdays only, except in Summer); and
- Washtenaw County employee parking lots (Free).

These conditions, along with the brick roads surrounding the Market, create particular challenges for those with limited mobility, increasing demand for close-in parking options. Another factor adding to this pressure is the need for many customers to carry large and/or heavy purchases to their vehicles.

Interviews with market managers indicate that they particularly focus on managing the impact of vendor vehicles. These vehicles are, by nature, the first to arrive to the area, and the on-site lot only has enough parking for half of the vehicles brought on a typical day. Market managers urge vendors to park in more remote locations to help preserve convenient, customer-parking options. Nonetheless, there is a sense that this has only been partially successful, and that these vehicles continue to constrain customer access.

Input from the coordinator of a Community Supported Agriculture drop-off that takes place in the Community High School lot on most Saturdays indicates that, on most Saturdays, parking in that lot is plentiful until around 10AM. Soon after this, however, it is completely full most of the time with vehicles circling continually, waiting for a space to open up. On consecutive Saturdays, field observations confirmed this pattern, and the fact that nearly all nearby parking options are at capacity during much of the Market's operating hours. Some exceptions include the lower level of the County employee lot at Ann Street and 4th Avenue.

Recent and Upcoming Changes

Interviews with Kerrytown representatives suggest the conversion to condos of a small privately-owned lot near the market had a large impact by removing a key space for people to load and unload.

There is a plan to expand the Market's infrastructure to facilitate all-season activity. This is planned for completion in 2016. As currently designed, the project would reduce the on-site lot's capacity by 10-15 spaces. Additionally, the adjacent blocks of 5th Avenue and Detroit Street are planned to be redesigned in 2018, which will greatly improve pedestrian mobility in this area for Market customers.

PARK AND RIDE

There have been several attempts to develop various forms of park-and-ride resources to accommodate Downtown parking demand within facilities located outside Downtown. Common to all have been a combination of free, ample parking combined with high-quality transit service between these lots and Downtown. The primary opportunity markets for this type of remote parking strategy are:

- Commuters who would take transit if it were more accessible
- Commuters who would take transit if it offered a shorter/faster ride
- Commuters who want an alternative to Downtown parking rates

A successful remote parking option attracts users by providing better transit than they can get at home, and cheaper parking than they can find Downtown. The greatest challenge is often minimizing the "dwell time" between parking and catching a bus. If service is insufficiently frequent, a missed bus can result in several minutes added to a driver's commute. Similarly, the location of a remote lot, relative to drivers' direct commute route is critical to minimizing the "time cost" of this option. If the remote option requires a driver to significantly divert from this route to access the lot, it is unlikely to be used.

Stakeholder input indicates significant interest in remote parking as a solution to the cost of Downtown parking, or the difficulty in obtaining a DDA permit. Several had tried this option, or seriously considered it, but few found it a viable option. One current permit holder formerly used a park-and-ride service, but found that the location of the lot nearly doubled his commute duration.

MULTIMODAL NETWORK SERVICE LEVELS

OVERVIEW

Following is an overview of utilization and conditions analysis for the downtown Pedestrian, Bicycle, and Transit networks identified previously. These networks provide the core resources for reducing parking demand while maintaining a highly accessible and mobile downtown. The wealth of these resources, in fact, has long been essential to Ann Arbor's economic success, and downtown's distinctive appeal.

Metrics that attest to the value that these mobility options provide include the following.

- Mode Share – Less than half of Downtown commuters surveyed primarily drive alone to work (40% in 2013).
- Transit Ridership – AAATA ridership is high, and has been growing steadily each year along with expansions in service.
- Transportation Demand Management (TDM) – More than 15% of 2013 survey participants had reduced their drive-alone commuting in the past year, largely creditable to record-breaking participation levels in the go!pass program which currently makes transit free for 73% of recently-surveyed Downtown employees.

Combined, these and other similar metrics indicate that commuters, residents, and visitors have embraced the wealth and diversity of downtown's mobility resources. This not only helps keep downtown an especially attractive place to work, live, and visit, it has been essential to allowing downtown's population and economic growth to outpace the growth of traffic and parking demand.

The following summary presents measures and descriptions of key performance conditions within these networks.

PEDESTRIAN NETWORKS

Downtown has long been known and appreciated as a distinctly walkable, mixed-use district combining a high-quality pedestrian network with a diverse range of destinations and diversions that support both practical and pleasurable walking trips. Beyond making downtown a distinctly appealing destination within a highly auto-dependent region, this walkability directly supports downtown's "park once" environment, which in turn significantly reduces how many parking spaces are required to support the downtown commercial economy. Additionally, this walkability is a key factor in the dramatic increase in demand for living within or close to downtown, creating a significant opportunity to reduce both auto commuting, by placing residents within walking distance of downtown jobs, and auto-ownership rates as downtown increasingly attracts households that maintain one or fewer cars.

Maintaining this high level of walkability is an ongoing effort, one that has benefitted from strategic investment over the years, including the following.

- Development of an award-winning Downtown Street Design Manual

- Implementation of "leading pedestrian intervals" at many intersections, giving crossing pedestrians a few seconds of WALK signal to establish themselves in the crosswalk before turning vehicles receive a GREEN signal
- Installation of a High-Intensity Activated Crosswalk (HAWK) in 2010
- Completion of 15 Rectangular Rapid-Flash Beacons (RRFB's) to enhance pedestrian safety at crosswalks, including one at South University and Tappan.
- Construction of 33 major and 11 minor mid-block pedestrian crossings between 2007 and 2014, implemented as part of the city's Nonmotorized Transportation Plan[3]
- Creation of a nine-member Pedestrian Safety and Access Task Force in November 2013, which is expected to make final recommendations to the City Council by Fall 2015[4]
- Installation of ADA ramps throughout the downtown
- Complete streets improvements, such as the DDA's 2012 improvements on 5th Avenue and Detroit Street
-

The capacity of the existing network, including recent and pending improvements, to attract future trips away from driving options will be largely dependent upon two primary factors.

1. Network completeness and safety
2. Access to housing that is walking distance to downtown jobs

Network Completeness & Safety

Completeness

The map below presents an overview of the downtown pedestrian network, as a cohesive pedestrian network, including seamless connections between downtown and the University of Michigan, while also highlighting minor gaps within this network.

[3] City of Ann Arbor Planning and Development Services and the Alternative Transportation Program, City of Ann Arbor Non-Motorized Transportation Plan Update, 2013, http://www.a2gov.org/Documents/Ann%20Arbor%20NTP%20Update%202013.pdf,

[4] Ibid, 8.

Figure 17 Ann Arbor Pedestrian Inventory and Gaps

Data Sources: DDA, Washtenaw County GIS, City of Ann Arbor, Open Street Map

At the most northern block of North First Street, the sidewalk ends abruptly on one side of the street. This happens similarly on Third Street between Koch and West Mosley. These blocks are quiet, residential blocks and offer sidewalks on at least one side of the street extending beyond the downtown boundary.

The map also shows two gaps that are more centralized within downtown, but these are minor and largely inconsequential gaps as well. On West Ann Street, the sidewalk ends as the street turns into a parking lot by the train tracks. The sidewalk gap shown at South First Street between West Liberty and West William is more accurately an irregular sidewalk, rather than a gap, where the path follows the train tracks diagonally, which is actually safer for pedestrians as they do not need to cross the tracks.

Safety

High-Crash Locations

High-priority crash locations identified in the Ann Arbor Transportation Plan[5] include the following downtown intersections.

- Huron Street at Main Street

[5] Ann Arbor Transportation Master Plan Update, 2009, 70-79.

- First Street at Huron Street
- Fifth Avenue at William Street
- Liberty Street at Division

It also included the following intersections within the downtown UM campus.

- Hill Street at State Street
- Church Street at South University Avenue
- State Street at South University Avenue
- State Street at Huron Street

While the vulnerability of pedestrians to impacts from autos makes any level of crash activity unacceptable, it's important to note that less than 2 percent of all crashes in Ann Arbor involved pedestrians, placing it in similar territory of peer cities like Portland, OR, Madison, WI, and Boulder, CO.[6] And, for data collected 2008 – 2012, compared to other cities in southeast Michigan, Ann Arbor has roughly one-third fewer pedestrian crashes per percent increase in pedestrian mode share.[7]

Intersections and Crosswalks

65% of pedestrian/motor-vehicle crashes in Ann Arbor occur at intersections.[8] Addressing this safety issue was a particular focus of the newly released Downtown Street Design Manual. Specific improvements identified in the manual include creating more-logical crossings (direct, short, aligned with sidewalks, etc.), ensuring completeness of pedestrian crossings at intersections, providing crossing islands where feasible and appropriate, and continuing to implement leading-pedestrian intervals and restrict right-turn-on-red movements.[9]

Midblock Crossings

Pedestrians will generally seek the shortest path to their destinations regardless of formal crossing infrastructure, which is typically restricted to intersections. This often means cutting through blocks and/or crossing streets where there is no crosswalk striped. Shoppers often cross Liberty Street when there is a gap in traffic, or students can be seen waiting on a median of North University as traffic goes by. Ann Arbor has shown a commitment to supporting safety in this regard by installing 33 major mid-block pedestrian crossings between 2007 and 2014, about 31 percent of the total recommended in the Non-Motorized Transportation Plan.[10] These crossings, like the one on Main Street between William Street and Liberty Street, increase visibility and allow pedestrians more direct routes to their destinations without having to travel to the next intersection.

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[6] Craig Hupy, City of Ann Arbor, Pedestrian Crash Data Comparison, 2014, 2.

[7] Ibid, 4.

[8] Ibid.

[9] Ibid, 148.

[10] City of Ann Arbor, Non-Motorized Progress Report, 2014, http://www.a2gov.org/departments/systems-planning/Transportation/Documents/2014%20NM%20Progress%20Report.pdf, 5.

Access to Housing

Downtown's high level of walkability creates a distinct opportunity for high rates of walking to work. The density and diversity of land uses within downtown makes it viable to live within walking distance of a major job center, as well as daily goods and services. This unique opportunity for car-independent living and commuting has been a critical factor in the increasing demand for downtown and downtown-adjacent housing, as reflected in both the growth of households and the cost of housing in these areas.

These new residents present a growth opportunity for in downtown jobs and businesses that comes with little new parking demand beyond what is provided at home. Taking full advantage of this opportunity is a priority for continuing downtown's history of thriving on less-than-typical levels of parking supply. This opportunity, however, faces two key challenges.

The first is the cost of providing parking at or near new downtown residences. The cost of recent DDA supply expansions has gone well-above $45K per space, and private developers face similar, if not higher, costs. This both reduces how many new housing units can be provided on each new development site, and increases the cost of occupying these new homes.

Parking costs and high demand relative to supply present the other significant challenge to expanding walk-to-work housing opportunities. The resulting cost of downtown and near-downtown housing is rapidly reducing walkable-commute opportunities low- to moderate-wage downtown employees. The benefit of new Downtown residents, in terms of creating more growth with less parking, is thus offset by retail and service workers who increasingly find their housing options limited to areas lacking walking, or even transit-based, commuting options.[11]

[11] Washtenaw County Office of Community and Economic Development, Prepared by czb, Housing Affordability and Economic Equity – Analysis – Washtenaw County, Michigan, 2015, http://www.ewashtenaw.org/government/departments/community-and-economic-development/plans-reports-data/housing-and-infrastructure/2015/washtenaw-county-affordability-and-economic-equity.pdf.

BICYCLE

According to the getDowntown 2013 Commuter Survey, 7% of downtown commuters bike to work.[12] Additionally, the study reports that 24% of commuters either regularly commute by bike or have commuted by bike ten or more times in the past year. By contrast, just 3.5% of citywide commuters primarily bike to work. This is high relative to regional, state, and national norms, but low if compared to comparable cities such as Berkeley, CA (6%), Boulder, CO (7.4%), Cambridge, MA (4.1%), and Eugene, OR (8.8%).[13]

The capacity of the existing network, including recent and pending improvements, to attract future trips away from driving options will largely depend on continuing efforts to complete and expand the existing bike network. Improving safety along high-risk segments will be particularly important beyond the Downtown. Safe and effective (relatively direct) connections to Downtown's robust network of bike routes, parking options, shared bikes, and bike-friendly transit options is key to expanding Downtown's biking culture outward into viable commuter sheds.[14]

Research has shown that protecting bicycle facilities increases their use. For example, Boulder, CO saw a 54% increase in bike use on Folsom Street after the street, originally having an unprotected bike lane, was redesigned with a protected bike lane.[15] Rio Grande Street in Austin, TX saw a 126% increase in bicycle volume after the conversion of an unprotected bike lane to protected.[16] Designing facilities for the most vulnerable users can increase their accessibility for more users.

Network Completeness

Figure 18 presents an overview of the robust bike network throughout downtown, including bike lanes and sharrows, as well as stations for the recently-launched bike-share program, ArborBike.

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[12] getDowntown 2013 Decision-Maker and Commuter Surveys Executive Summary, 2013, 6.

[13] Non-Motorized Transportation Plan Update, 2013, 200.

[14] National Institute for Transportation and Communities, NITC-RR-583 - Lessons from the Green Lanes: Evaluating Protected Bike Lanes in the U.S., 2014.

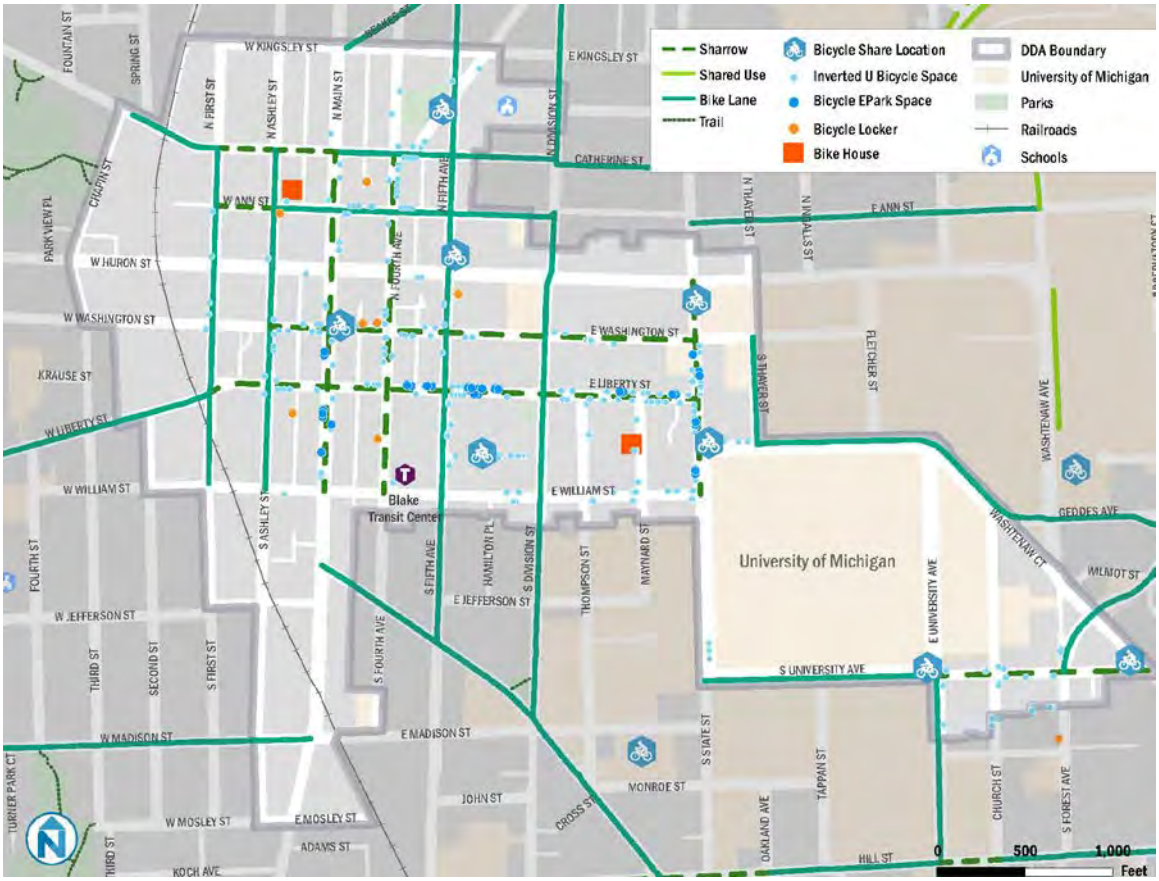
Transportation Research Board, TCRP Report 95 – Pedestrian and Bicycle Facilities – Traveler Response to Transportation System Changes, 2012.

Michael Andersen, People for Bikes, The Protected Bike Lane Ridership Bump - City by City, 2014, http://www.peopleforbikes.org/blog/entry/everywhere-they-appear-protected-bike-lanes-seem-to-attract-riders.

[15] Michael Andersen, People for Bikes, As Other Cities Build Protected Bike Lanes, Boulder Plans a Rollback, 2015, http://www.peopleforbikes.org/blog/entry/as-other-cities-build-protected-bike-lanes-boulder-plans-a-rollback.

[16] National Institute for Transportation and Communities, NITC-RR-583 - Lessons from the Green Lanes: Evaluating Protected Bike Lanes in the U.S., 2014, 7.

Figure 18 Ann Arbor Bicycle Network



Data Sources: DDA, Washtenaw County GIS, City of Ann Arbor

This network supports a distinctly high level of service for local bike travel. This is critical to supporting reduced auto-dependence and ownership rates among downtown and downtown-area households. However, to maximize the benefit of this network in increasing cycling-commute rates, the Downtown network needs to connect to safe and effective cycling routes within the surrounding areas of the city and its suburbs. Instead, in most cases, the Downtown network of in-road facilities ends abruptly at the edge of the district. Some employees interviewed in focus groups mentioned the regular practice of driving to a distant lot, neighborhood, or Park and Ride lot and biking the rest of the distance into work, again highlighting the importance of connections between the downtown and the larger city.

Unfortunately, the quality of the regional network has been declining rather than increasing toward the level provided in downtown. According to the 2014 *Non-Motorized Progress Report*, the pavement, marking and striping scores of citywide in-road bike facilities decreased by 1.81%, 3.69%, and 7.27%, respectively, between 2011 and 2013.[17]

[17] Non-Motorized Progress Report, 2014, 9.

There are also some issues specific to the UM campus areas in downtown, mostly related to shared-use paths creating conflicts between cyclists and pedestrians. While there is no formal survey on the subject, students and faculty have reported concerns with the way bicyclists and pedestrians share pathways across campus.[18] The only on-street bike lanes within the university are located on North University Avenue and part of South University Avenue (see Figure 18). The lack of bicycle lanes and sharrows on the main roads through campus creates congestion within the campus paths, where cyclists ride on paths intended for pedestrian use.

Bike Parking

From May to August 2011, the DDA completed 12 surveys of parked bikes within the DDA boundary. Figure 19 shows the blocks with the highest amount of bike parking. The report also shows that the blocks with the lowest concentration of parked bikes were on blocks on Huron Street, North and South University Avenues, and parts of Main Street and Miller Avenue.[19] The lack of bikes parked on these blocks is consistent with their lack of bike parking infrastructure. Additionally, it is not surprising the Huron Street often has no bikes parked on it,[20] as it is a busy road with no lanes or sharrows.

Figure 19 Blocks with the highest concentration of parked bikes

Table 2. BLOCKS WITH THE HIGHEST CONCENTRATION OF PARKED BIKES

Street	Block	# of Hoops Available	Average Count
East University	600	6	7.1
William	E500	10	8.8
State	S100	21	9.4
State	S200	17	9.7
Liberty	E600	14	10.2
North University	700	13	10.8
Liberty	E500	17	11.6
Washington	E400	11	11.9
State	S300	13	12.6
Maynard	300	10	13.0
Forest	500	15	38.3

Source: DDA Bike Parking Count Report, 2011

High-Risk Locations

There is an average of ~200 crashes per year in Ann Arbor involving pedestrians or bicycles, split evenly between these.[21] Of the crashes involving bicycles, 75% caused injuries and zero were fatal. Of the crashes involving pedestrians, 91% resulted in injuries and three were fatal. A majority of crashes (63%) involving cyclists occurred on road segments without any non-motorized facilities available.[22] Meanwhile, just 17% of pedestrian crashes occurred on roadways without pedestrian infrastructure. This brings attention to the need of more facilities that allow for cyclists to make

[18] Non-Motorized Plan Update, 2013, 137.

[19] DDA Bike Parking Count Report, 2011, 2-3.

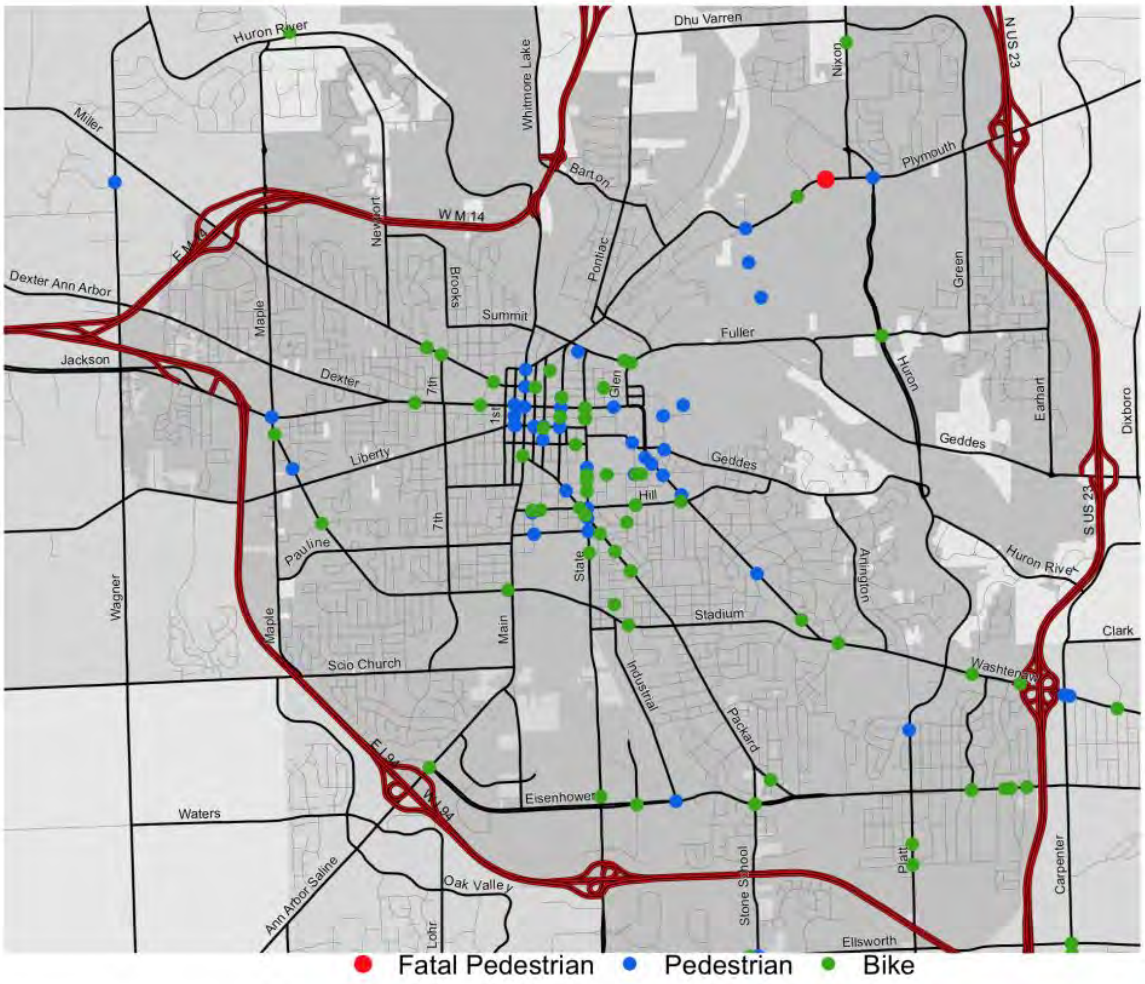
[20] Ibid.

[21] Washtenaw Area Transportation Study, 2013 Traffic Crash Report for Washtenaw County, 16.

[22] Ibid.

safe turns throughout the city.[23] The map below shows that many crashes took place in and around Downtown.

Figure 20 Pedestrian and Bicycle Crashes in Ann Arbor (2013)

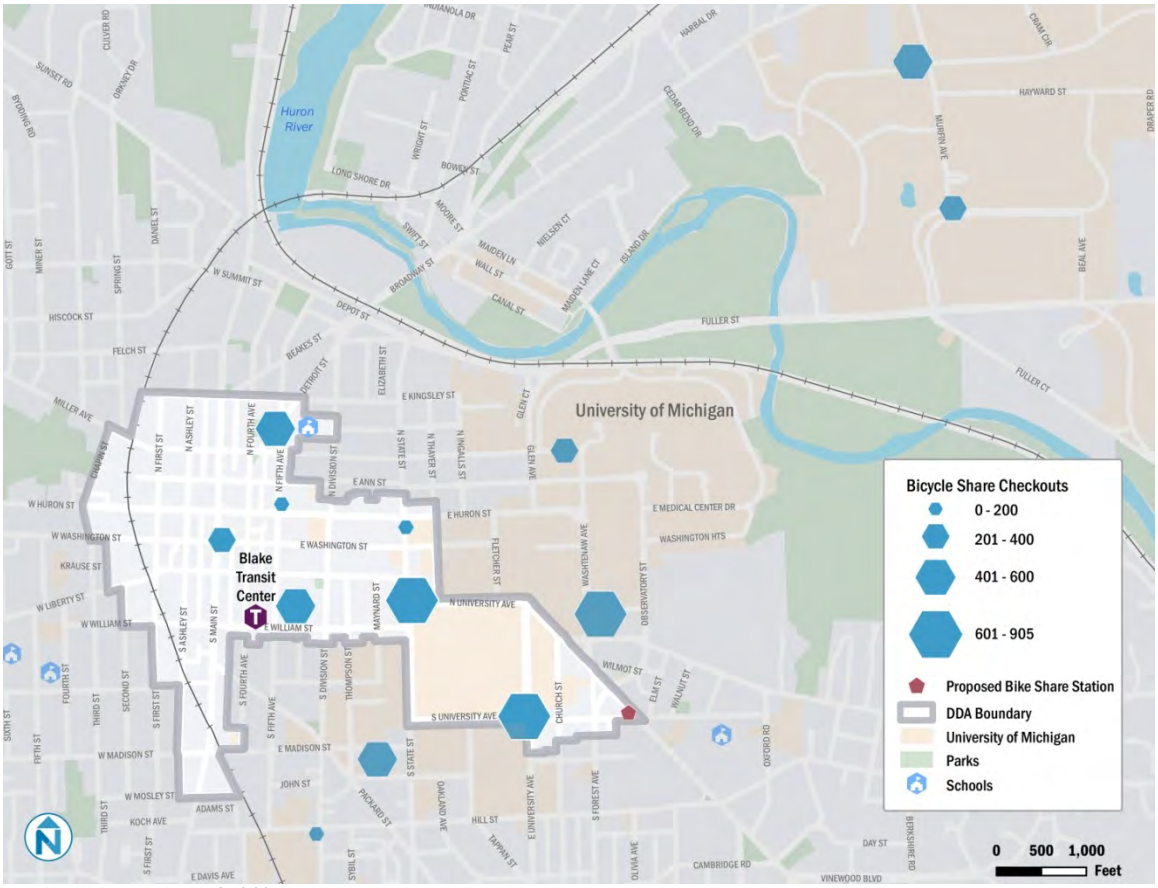


Data Sources: 2013 Traffic Crash Report for Washtenaw County

[23] City of Ann Arbor, Non-Motorized Progress Report, 2014, http://www.a2gov.org/departments/systems-planning/Transportation/Documents/2014%20NM%20Progress%20Report.pdf, 9.

BIKE-SHARE (ARBORBIKE)

Figure 21 Ann Arbor Bike Share Locations and Utilization to Date



Data Sources: DDA, State of Michigan Open Data

ArborBike is a B-Cycle-supported[24], bike-share program, begun as a pilot in 2014, and most recently expanded in May of 2015. ArborBike is a partnership between the Clean Energy Coalition, University of Michigan, AAATA, and the City of Ann Arbor. The Clean Energy Coalition (CEC), a nonprofit, nonpartisan organization dedicated to promoting clean energy technologies as a way to create healthier, energy-independent communities. The CEC is exploring options for starting similar programs in other cities, starting with Detroit.

The program currently has approval for three-season operation. Program administrators must arrange the removal of bikes and stations for winter. The timing of this is determined at the discretion of the City, based on its sidewalk clearance needs.

B-Cycle's Role

B-Cycle provides the program with bikes, and the materials for the stations. It also provides the administrative and outward-facing websites, as well as customer service support. ArborBike staff

[24] bcycle.com

also have access to resources for repairs and maintenance, and staff attend B-Cycle World, an annual information/strategy sharing conference.

Funding

The program has three revenue streams. UM covers its operating costs. The rest is covered by a combination of fees (memberships and use fees) and sponsorships/advertisements. Fee revenue has been in line with expectations, if not a bit higher. Sponsorships, by contrast, have brought in far less revenue than expected. There is a sense, however, that this will change, as the program is expanded and better known..

Goals and Objectives

Aside from financial sustainability, the primary objective of the program is providing mobility options to reduce CO2 emissions within Downtown.

Growth

To date, the biggest catalyst for increased participation and ridership has been station expansion and exposure. The visible presence of stations has noticeably increased awareness, evident from increased inquiries from those who have seen the stations and want to try the system. The program recently added a marketing intern to its staff to help expand program awareness.

GIS transceivers, located on each bike, track the travel patterns during each use, which are being used to plan new locations and stations for the next expansion phase. Requests for station locations will also inform these decisions. Administrators are also reaching out to private property owners, particularly of residential properties, to develop stations on-site. Many of these property owners already advertise proximity to stations to potential tenants.

Administrators are also partnering with Ypsilanti-based advocacy organization to ensure that the program continues to incorporate important innovations, including the potential use of “trikes” (three-wheeled bikes) and payment options to accommodate use by those lacking credit cards.

TDM Achievement & Potential

Program administrators recently adjusted the daily hours of the stations, at the request of UM hospital workers, to allow this group to use ArborBike to connect to their jobs after alighting from buses at the Blake Transit Center. This represents an important indication that these bikes will be used to support non-driving commutes, providing an attractive “first/last mile” resource that can make options like transit and carpooling more viable. Focus group attendees were largely happy about the ArborBike stations in the downtown but many mentioned the lack of stations as a barrier to its use as a legitimate commuting or connection option.

TRANSIT

The quality of downtown’s walking and cycling networks deserve and receive a lot of attention and praise, particularly given Ann Arbor’s position within a highly aut0-dependent region. Most of the decline in driving and commute mode shares over the years, however, has been linked to an increased embrace of transit. This embrace is a direct result of the quality and diversity of transit options available to downtown travelers.

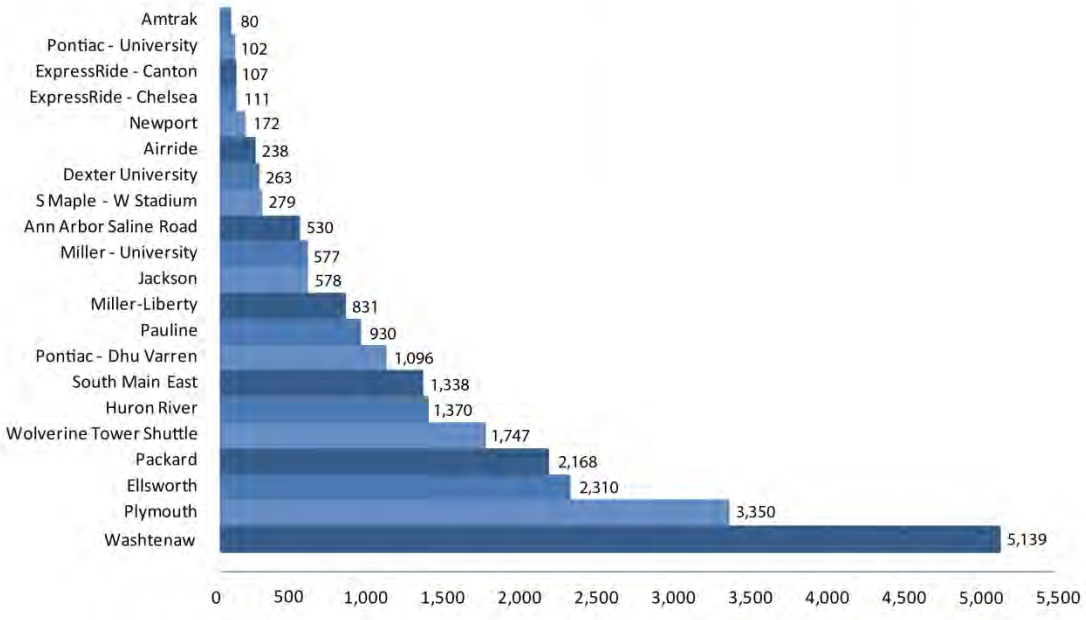
While it will be important to continue to build upon cycling's recent mode share gains, and to seek more "live near your work" opportunities for Downtown employees, increased transit reliance remains the most substantial opportunity to reduce aggregate parking demand. Fortunately all indications point toward a strong potential to continue past achievements in this area; including the increased transit utilization measures, expanded service levels, and the potential for new forms of rapid transit service that are summarized below.

Ridership

Transit use is rising with TheRide's ridership hitting a record high for the second year in a row in 2013. Transit trips using the DDA's go!pass, the unlimited-use transit pass available to downtown employees, increased by 7% from 2013 to 2014 with 457 employers and 4,000+ individuals participating. AirRide alone averages 4,000+ monthly riders to and from Detroit Metro Airport.

According to the AAATA's Ridership by Route statistics,[25] Route 4 – Washtenaw had the highest average weekday ridership of 5,139 rides and an average weekend ridership in 2014 of 1,298 rides. Other high-ridership routes include Route 2 – Plymouth at 3,350 weekday rides and 653 weekend rides, Route 6 – Ellsworth with 2,310 weekday rides and 875 weekend rides, and Route 5 – Packard with 2,168 rides and 422 weekday rides.

Figure 22 Weekday Transit Ridership by Route



Data source: DDA

The Washtenaw Route, which connects downtown Ypsilanti to downtown Ann Arbor, has had the highest increase in ridership over the last few years, increasing 27% in one year, from 2011 to 2012. Following this increase, in January 2012, TheRide doubled this route's frequency, running

[25] AAATA, Ridership by Route - October 2014.

buses every 5-10 minutes during peak hours and 15-20 minutes during non-peak hours.[26] The DDA provided a grant in 2012 to increase service frequency on Washtenaw in 2012 and both Washtenaw and Packard in 2013. These grants continue.

Focus group attendees interviewed lamented the infrequent buses and lack of a user-friendly mobile app as barriers to using transit for their commute. Park-and-ride was often mentioned as something that employees had tried. However, some found it added too much time to their commute due to the bus stopping along the way from the park-and-ride lot to the downtown. Attendees proposed an express route from the park-and-ride lot to the downtown as a way to make the option more attractive.

Recent and Pending Service Improvements

Improvements identified in the Five-Year Transit Improvement Plan (2014) details proposed service improvements to the greater Ann Arbor area including fixed-route buses, on-demand services, and services for seniors and people with disabilities. Overall, the plan calls for a 44% increase in fixed-route services over the next 5 years. Key improvements to downtown service include the following.

- Improvements to almost every route that serves the City of Ann Arbor
- All routes except one will run later on evening weekdays, typically an hour later but sometimes more.
- Selected Ann Arbor routes will also start earlier on weekdays.
- Many routes will run more frequently, reducing crowding and wait times for riders.
- An express route from Ypsilanti to Ann Arbor will be added.
- The entire west side of Ann Arbor will see a restructured route system, with several routes split into 2 or 3 new route, making the resulting new routes more direct and convenient.
- In some cases, the redesigned routes expand into neighborhoods not previously served.
- Weekend services will be greatly expanded, with buses running 3-5 hours later into the evenings, on Saturdays and an hour on Sundays.
- Service hours for A-Ride (for people with disabilities) and Good as Gold (for seniors) will be expanded until 11:30 p.m. on weekdays and 10:30 p.m. on Saturday and 7:30 p.m. on Sunday.

The plan also outlines its benefits to non-riders including the following.

- Promoting economic activity by providing more access to job and educational opportunities
- Providing a lifeline for seniors, people on low incomes, and people with disabilities
- Reducing parking demand and congestion
- Creating a welcome mat for visitors who come to the area and would otherwise have to rent a car to get around
- Creating a community that is attractive to new college graduates and young families who increasingly prefer not to own a car

[26] Smart Growth America, Washtenaw Avenue Transportation Demand Management Strategy, 2014 http://smartgrowthamerica.org/documents/washtenaw-tdm-final-report.pdf, 15.

Plans for Rapid Transit Service

Opportunities to develop high-capacity, rapid transit along several corridors have been the focus of several studies. According to the City's Transportation Master Plan Update (2009), the highest priority corridors are Plymouth/Fuller, Washtenaw, State, and Jackson/W. Huron.[27]

The **Connector Feasibility Study**, completed in 2011, examined a series of alternatives – Bus Rapid Transit (BRT), Light Rail Transit (LRT) and monorail – for rapid mass transit service along the city's north/south axis. The study estimated potential ridership for the service in the tens of thousands, and recommended BRT or LRT with a dedicated right-of-way through the downtown core. Implementation is currently pending funding commitments from UM.

The **North-South Commuter Rail Line** (also known as WALLY), is a proposed 27-mile commuter rail service that would connect downtown Ann Arbor and Howell, along with five intermediate stops. WALLY is intended to alleviate congestion along the US-23 corridor as well as provide sustainable transportation alternatives between these communities. This project would upgrade an existing freight line to commuter rail service and would attract an estimated average weekday ridership of 1,300.[28]

Core rider demographics include discretionary travelers and UM faculty residing in Livingston County. WALLY would be administered by an inter-county rail transit authority, yet to be established, between Washtenaw and Livingston Counties. The corridor would be served by four morning and four evening train trips. While rolling stock has been acquired from Metra in Chicago, and preliminary railway designs have been produced, implementation is on hold due to lack of construction funding. In 2014, AAATA officials announced that WALLY would undergo a second 18-month, federally-funded feasibility study.[29]

Enhanced transit service connecting Ann Arbor to Ypsilanti, Dearborn and Detroit, along the Michigan Avenue Corridor, was recently explored under a project called "Building Equitable, Sustainable Transit" (BEST). The focus of the study was to investigate how to reduce commute times and expand access to downtown services and employment in all four cities. Implementation is on hold as planners seek to secure federal New Starts funding.

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[27] Transportation Master Plan Update, 2009, 49.

[28] Corridor Oversight Committee, WALLY North South Commuter Rail Service Business Plan, 2008, http://www.theride.org/Portals/0/Documents/5AboutUs/WALLY/2.4.6%20Wally%20Business%20Plan%20September%2008.pdf, 6.

[29] Ryan Stanton, $650K study for commuter rail between Ann Arbor and Howell moving forward in 2014, 2014, http://www.mlive.com/news/ann-arbor/index.ssf/2014/01/ann_arbor_gets_650k_federal_gr.html.

TDM PARTICIPATION & IMPACTS

Transportation Demand Management (TDM) represents strategic efforts to use the multimodal networks outlined above, as well as other drive-alone mobility alternatives, to reduce traffic and parking demand. For decades, TDM has been a critical complement to effective parking management in downtown, and a critical element in its economic success and growth. Not only does TDM help reduce necessary investments in parking supply, it directly identifies more-economical investment opportunities for better walking, cycling, and transit, all of which bring multiple, co-benefits beyond improved downtown access.

Following is an overview of the achievements and popular embrace of prominent TDM programs serving downtown.

GO!PASS

Participation

One of the most remarkable achievements of the getDowntown program is the steadily rising levels of participation it has attracted to its signature offering, the go!pass. Collectively, employers acquire an average of 6,500 go!passes per year, which accounts for about 60% of downtown employees.[30] In the 2014 program year, go!pass users logged 662,692 trips, a 7% increase over the previous year.[31] The *go!Pass Monthly Usage Report* from November 2014 to July 2015 shows nearly 500 employers participating in the program, with about 4,400 members using their cards during this period.[32]

Figure 23 Top 10 go!pass Organizations – Total Uses per Year

#	2010-2011	2011-2012	2012-2013	2013-2014
1	Washtenaw County Government	Google	Zingermans Deli	Zingermans Deli
2	City of Ann Arbor	ITHAKA / JSTOR	Ann Arbor District Library	City of Ann Arbor
3	Zingermans Deli	Zingermans Deli	ITHAKA / JSTOR	Ann Arbor District Library
4	Ann Arbor District Library	Ann Arbor District Library	The Dahlmann Campus Inn	Real Seafood
5	Google	City of Ann Arbor	Five Guys Burgers	BurgerFi
6	Ann Arbor YMCA	Douglas J Aveda Institute	Gratzi / Chop House	The Dahlmann Campus Inn

[30] Smart Growth America, Transportation Demand Management – Existing Practices and Opportunities – Washtenaw Avenue Corridor, 2013, http://www.smartgrowthamerica.org/documents/washtenaw-working-paper-1_1-2013.pdf.

[31] DDA, State of the Downtown, 2014, http://www.a2dda.org/wp-content/uploads/StateofDowntown2014.pdf.

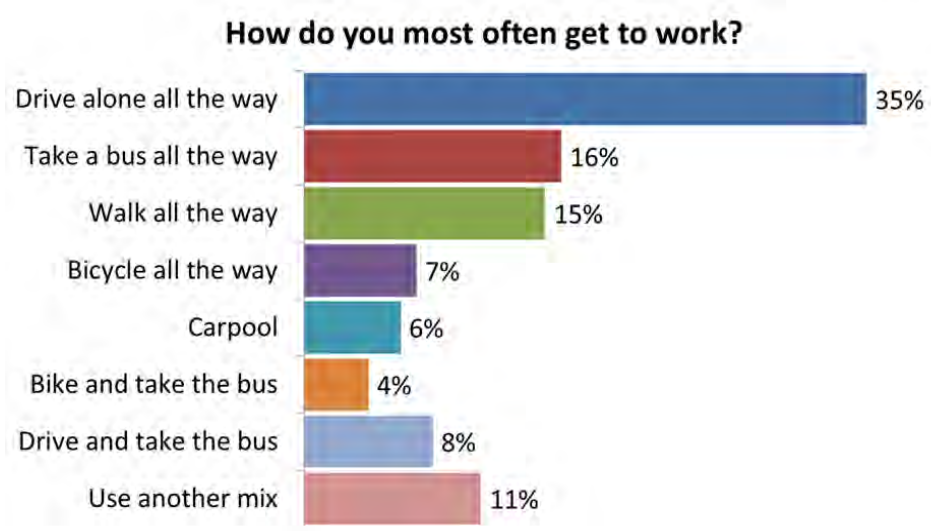
[32] DDA, go!pass Usage Nov 2014 – July 2015.

#	2010-2011	2011-2012	2012-2013	2013-2014
7	ITHAKA / JSTOR	Gratzi / Chop House	City of Ann Arbor	ITHAKA / JSTOR
8	Gratzi / Chop House	Ann Arbor YMCA	Ann Arbor YMCA	People's Food Co-op
9	Cottage Inn	Sava's State Street Café	Douglas J Aveda Institute	Prime Research
10	Douglas J Aveda Institute	Amer's Deli on State	Amer's Deli on State	Ann Arbor YMCA

Source: DDA

Impact on Travel and Parking Demand

Figure 24 Commute Modes Among Downtown Employees

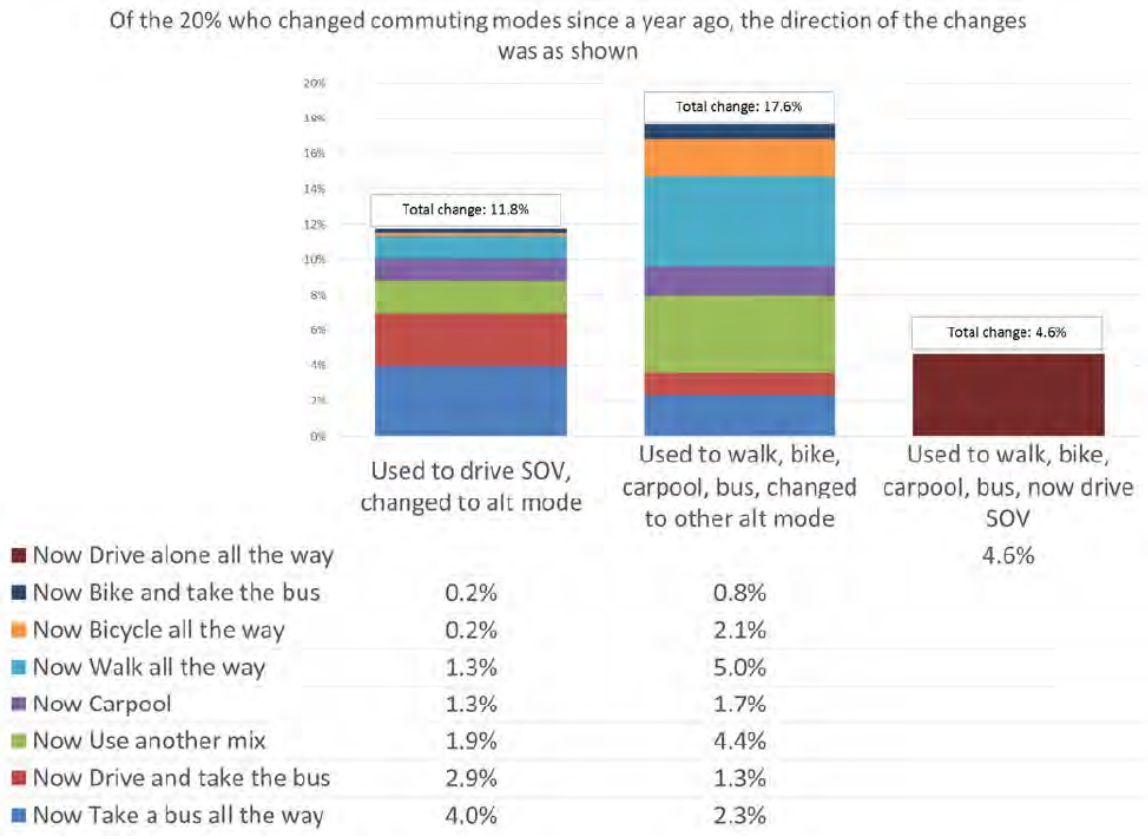


Source: getDowntown 2013 Commuter Surveys

According to the 2013 getDowntown Commuter Survey, of those who responded, only 35% of downtown employees drive alone to work. This is particularly remarkable, given that 96% of survey respondents indicate that they have a driver's license, and 88% have access to a vehicle that they could use for commuting.[33] Of those who do not drive to work, 18% regularly commute using AAATA, and 25% occasionally commute using AAATA.[34] 11.8% of 2013 respondents indicated that had reduced their rate of drive-alone commuting during the previous year. About 4% are now full-time transit commuters.[35] By far, the most commonly cited factor in making these changes was access to the go!pass benefit. [36]

[33] getDowntown, getDowntown Decision-Maker and Commuter Surveys, 2013, 6.
[34] Ibid, 8.
[35] Ibid, 10.
[36] Ibid, 11.

Figure 25 Change in commuting modes



Source: getDowntown 2013 Commuter Surveys

Current levels of go!pass utilization and influence are estimated to reduce traffic into downtown by over 820 vehicles, with a commensurate reduction in parking demand associated with that.

Impact on Employee Attraction & Retention

An increasingly important benefit of the getDowntown program is helping downtown businesses attract and retain employees. The cost of parking, and the fact that most jobs lacked on-site parking, were previously considered significant competitive liabilities for downtown businesses. The walkability and distinctive Main Street qualities that were key to attracting visitors, were widely viewed as insufficient compensation for a lack of suburban-level parking benefits in attracting and keeping quality employees. This has changed significantly, as more and more companies and employees seek out Downtown for its transit accessibility, bike accommodations, walkable urban environment, and its rich, innovation-stimulating, urban environment.

Several meetings with Downtown employers, particularly those who have recently started up within, or relocated to, Downtown made this particularly clear. While the cost and hassle of parking was consistently cited as a negative component of the experience, nearly all indicate that the advantages of being Downtown far outweighed any negatives, including parking.

This turnaround has been achieved in part by getDowntown's promotional and informational campaigns to make transit, bike, and rideshare commuting accessible to a population largely unfamiliar with these options. According to the 2013 getDowntown Commuter Surveys, 77% of

go!Pass employers reported that a comprehensive commuting benefit program is either helpful, very significant, or crucial in attracting and retaining good employees. Furthermore, 55% of employees with go!passes said that they consider the program to be an important benefit of their job.[37]

Commuter Bike Parking

To support regular bike commuting, getDowntown provides long-term, sheltered, and secured parking for bikes in the form of lockers and bike houses. Many local employees mentioned the potential value of having covered bike parking as a regular amenity and were surprised to find out that the DDA actually provides such parking in the form of lockers and bike houses.

Lockers

As of August of 2015, five of the nine bike-locker locations were sold out, and almost two-thirds of the twenty-nine total lockers had been rented for the 2015-2016 program year.[38]

Figure 26 Ann Arbor Bike Locker

Source: getDowntown

[37] getDowntown, getDowntown Decision-Maker and Commuter Surveys, 2013 – Executive Summary, 2013 http://www.getdowntown.org/AboutUs/StudiesReports, 4,9.

[38] getDowntown, Bike Lockers, 2015, http://www.getdowntown.org/Bike/BikeLockers.

Bike Houses

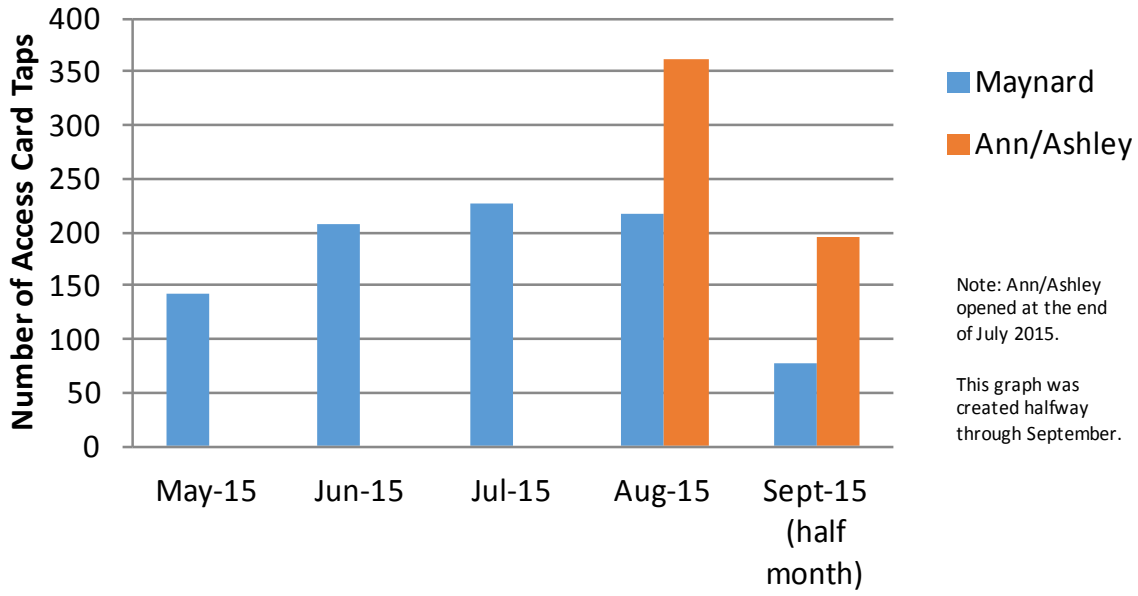
Figure 27 Ann/Ashley Bike House

Source: MLive

The Ann/Ashley Bike House opened at the end of July 2015 upon the request of several adjacent businesses in the area, including Duo Security, MyBuys Inc., Quinn Evans Architects, Mighty Good Coffee, and Workantile.[39] Within only two months, Ann/Ashley has reported an extremely high utilization rate, even compared to the tw0-year-old Maynard (see chart below). In fact, several of the above stated companies had prepaid for bike spaces for their employees to use.

[39] Ryan Stanton, Mlive, 2nd Bike House Being Built for Downtown Ann Arbor Bicycle Commuters, 2015, http://www.mlive.com/news/ann-arbor/index.ssf/2015/04/second_bike_house_being_built.html.

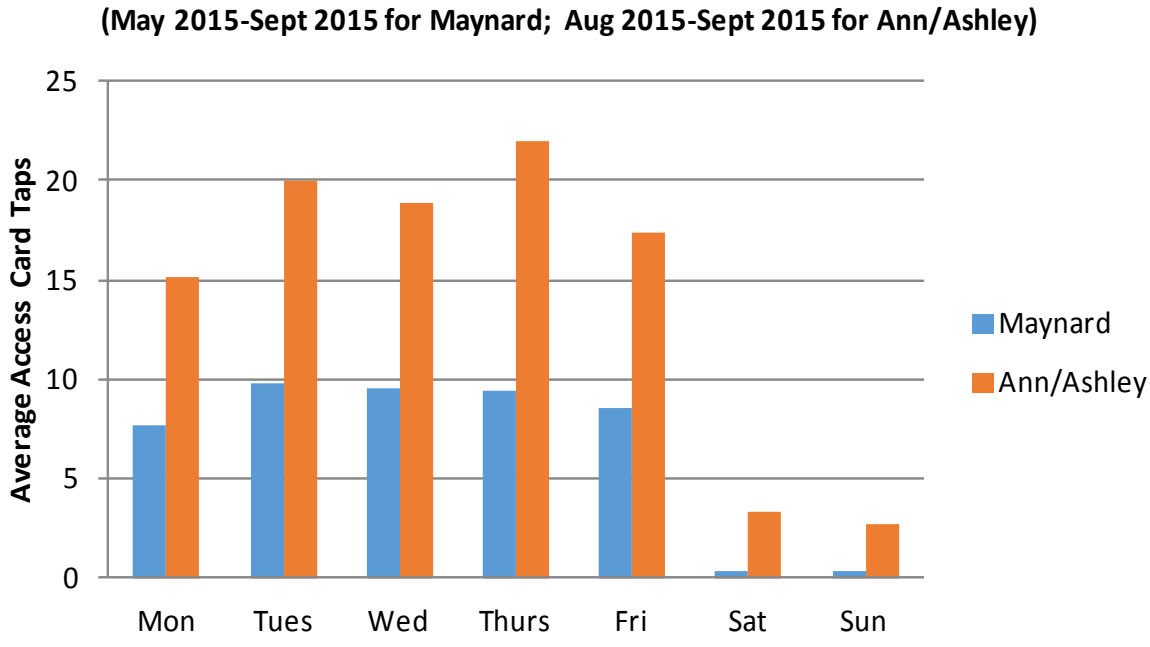
Figure 28 Monthly Access Trends for Maynard and Ann/Ashley Bike Houses



Data Source: DDA

There is a clear trend for when these bike houses are being used the most. During summer 2015, mid-week bike house uses were most common, with Saturdays and Sundays having barely any utilization, as seen in the chart below. This suggests that bike houses are primarily being used by commuters working Monday through Friday.

Figure 29 Average Bike House Accesses per Day of the Week



Data Source: DDA

The 464 square-foot bike house is about the size of three 8 x 20 foot automobile parking spaces. In a recent interview, DDA board member Keith Orr explained that the construction of the Ann/Ashley Bike House had a budget of $60,000, the same amount it would take per automobile parking space if they were to build a new parking garage.[40] Thus, the Ann/Ashley bike house ends up being 3 times less expensive for the amount of space it takes up, and able to securely house 27 more commuters than it would for as an automobile space for those in SOVs. To accommodate future growth, the current design could easily and inexpensively upgrade to accommodate an additional ~50 bikes, by adding and altering the bike hoops.

COMMUTER COMPETITIONS

The Commuter Challenge is a competition that takes place every year for the whole month of May to encourage employees to commute using alternative methods of transportation. Commuter Challenge participants receive discounts during the challenge month, and winners receive prizes at the end of the competition.

The cumulative, logged alternative-mode trips of competition participants for this time period is estimated to have eliminated almost 10,000 car miles that otherwise would have been driven in the city.[41]

ZIPCARS

Zipcars are managed by Avis, a publicly-traded, for-profit car rental company. As such, Zipcars that are not well-utilized do not remain in their locations for long. Downtown currently has a Zipcar inventory of 14 well-utilized shared cars. Carsharing fleets like Zipcar have significant potential to reduce vehicle ownership and parking demand in Ann Arbor. This is largely because carsharing replaces marginal cost transactions (driving a privately owned car) with the variable cost transactions of vehicles rented by the hour or day. While only about 40% of carsharing members in North America own private cars, carsharing was responsible for a dramatic shift among these households towards a car-free lifestyle.[42]

A 2011 peer-reviewed survey of 6,281 carsharing members in North America found that car ownership dropped by about 50% due to carsharing participation. The same study found that each carsharing vehicle effectively removed between 6 and 15 private automobiles from the roads. Meanwhile, 25% of carsharing members reported selling an owned vehicle with an additional 25% reporting they had avoided purchasing a vehicle due to carsharing. Carsharing may also complement Ann Arbor's non-motorized transportation goals, as carsharing causes net increases of 3% and 6% in walking and bicycling, respectively.[43]

A recent survey of carsharing members from Ithaca, NY, demonstrates that carsharing helps to reduce parking demand as well. In this 2013 survey, it was found that for every carsharing vehicle available, roughly 4.7 fewer private vehicles are parking on the street.[44] The geography of this

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[40] Stanton, 2nd Bike House Being Built for Downtown Ann Arbor Bicycle Commuters.

[41] Commuter Central, 2015, http://challenge.getdowntown.org/index.php.

[42] S. Shaheen, M. Mallery, and K. Kingsley, Personal Vehicle Sharing Services in North America, Research in Transportation Business & Management 3: 71–81, 2015, 73-74.

[43] Ibid.

[44] T. Stasko, A. Buck, and H.O. Gao, Carsharing in a University Setting: Impacts on Vehicle Ownership, Parking Demand, and Mobility in Ithaca, NY, *Transport Policy* 30: 262–68, 2013, 263-265.

reduction in parking demand closely corresponded to members' residences, the majority of whom reported they would park on the street or in off-street parking if the carsharing program did not exist. This suggests that carsharing may yield the most benefits in parking demand reduction in areas like downtown Ann Arbor where parking supply is most constrained.

UM PROGRAMS

The University regularly tracks alternative mode use through its Sustainability Cultural Indicators Program (SCIP), a multi-year project designed to measure and track the culture of sustainability on the University of Michigan's (UM) Ann Arbor campus. One of the SCIP's first initiatives was the endorsement of a Campus Sustainability Integrated Assessment (CSIA). Among the CSIA's themes, guiding principles and goals for 2025 is to decrease the carbon intensity of passenger trips on UM transportation options by 30% below 2006 levels. Initially released in 2014, and updated in 2015, the cultural indicators program report presents findings from surveys of U-M students, staff and faculty conducted during the second year of the SCIP.

The report's findings are intended to inform U-M administrators and others responsible for day-to-day operations of the University, including its academic programs, of the program's status. Findings to date underscore the ridership disparity between students, faculty, and staff noted above. According to the most recent "Sustainability Cultural Indicators" survey, students are both much more aware of transit, bike, and rideshare options, and much more likely to use these options.[45]

Transit Programs

Ridership of UM buses, and UM ridership of AAATA buses, appears to largely consist of students. In 2013, over 70% of UM students reported to have used a UM bus in the previous year. By contrast, about 70% of staff and 80% of faculty reported that they never used UM buses during the year. Similarly, half of the student population reported using AAATA buses during the year, while about 70% of both faculty and staff reported to have never used AAATA buses that year.[46]

Rideshare

In 2013, about 13% of UM staff and 4% of UM faculty reported using carsharing "sometimes" or "often". During that time, 500 employees utilized the University's vanpool program.[47]

[45] Ibid.

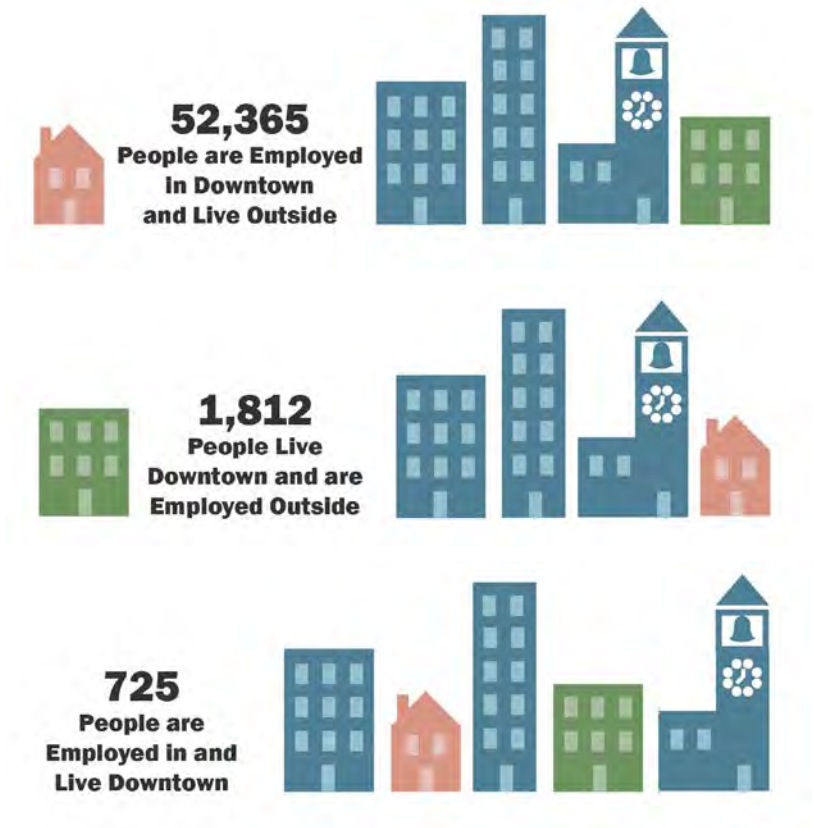
[46] University of Michigan, Sustainability Cultural Indicators Program: Second Year Report, 2015, 57-60.

[47] Smart Growth America, Existing Practices and Opportunities – Washtenaw Corridor, 13.

TRAVEL PATTERNS

US Census Longitudinal Employment-Household Dynamics (LEHD) data on the resident/employment locations of people in downtown Ann Arbor[48] shows that far more people are employed in the downtown and live outside (52,365 people) than live downtown and are employed outside (1,812). Relatedly, only 725 people both live and work within downtown.

Figure 30 Housing and Employment Locations



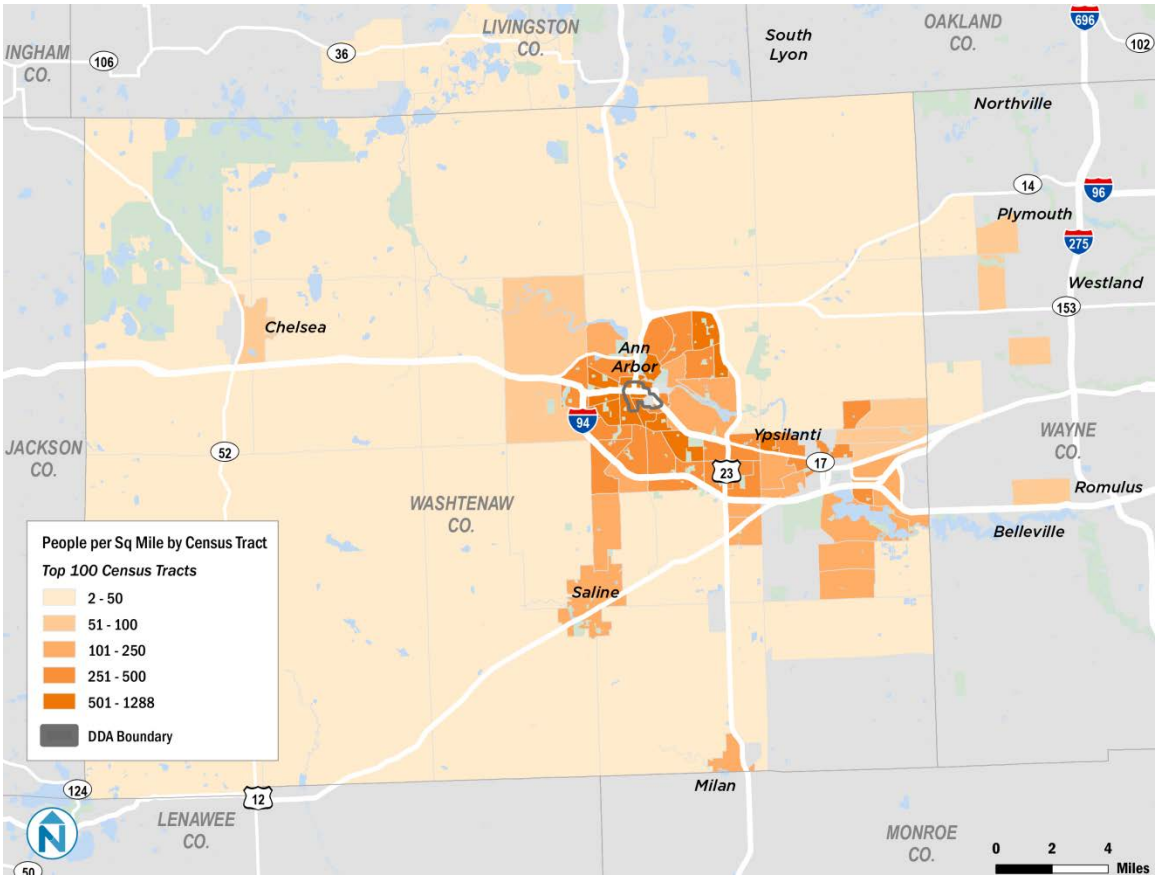
Source: 2013 US Census LEHD

Note: For census purposes, University student residences are reported as their parents' place of residence, not University campus dorms. LEHD data for residence locations is only available at the larger Census Tract level.

The following map depicts the broad distribution of where downtown workers live. Looking at the larger region, the 100 census tracts with the most downtown-employee home locations are almost entirely in Washtenaw County, with a few in tracts in Wayne and Livingston Counties. Outside of Ann Arbor, Ypsilanti has a relatively high density of residents who work downtown, as does Saline. Milan and Chelsea are small outlying pockets with some relative density, as well.

[48] The LEHD analysis was run on the existing DDA boundary plus a 500ft buffer to better include data from census blocks that were cut off by the boundary.

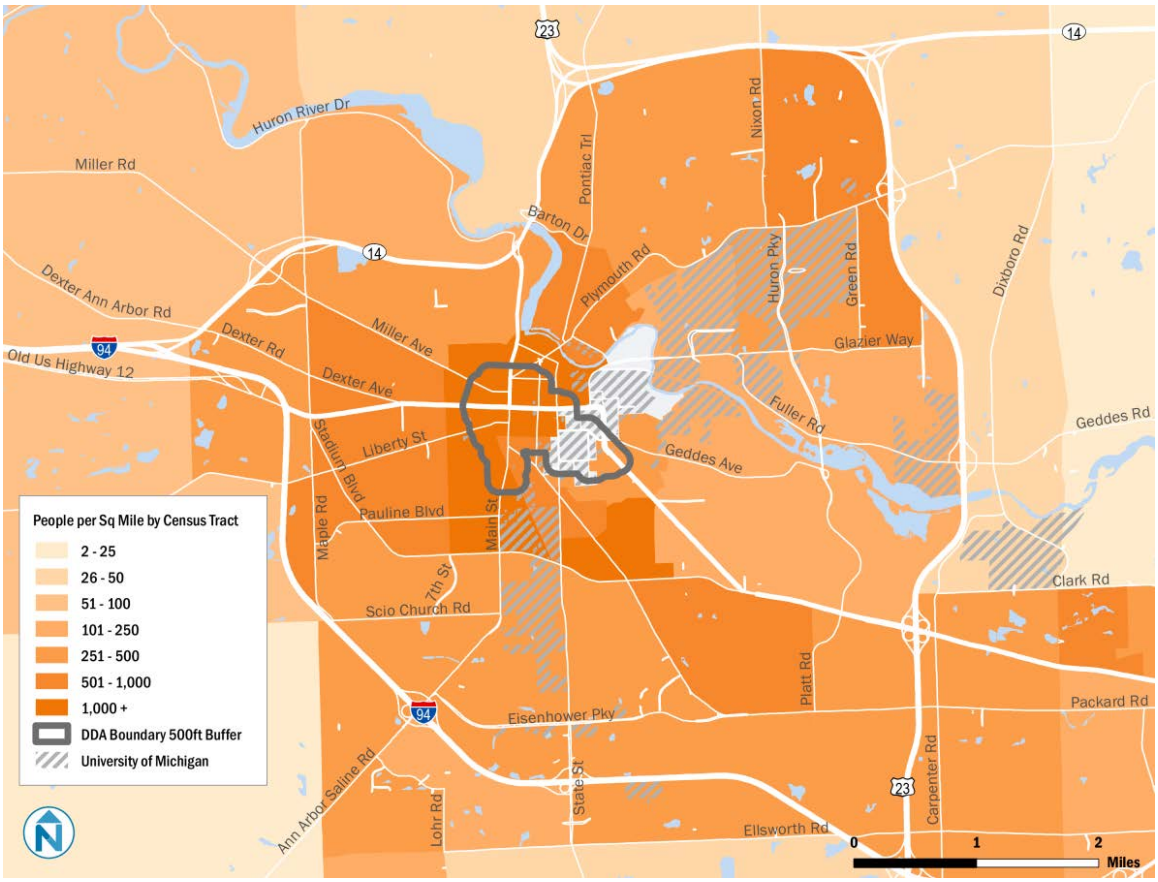
Figure 31 Home Locations of Downtown Workers – Regionally (Top 100 Census Tracts)



Data sources: 2013 LEHD, DDA, Washtenaw County GIS, City of Ann Arbor

At the city scale, some concentration of employees is evident within and near Downtown. Nonetheless, areas of concentrated employment are found across the city.

Figure 32 Home Locations of Downtown Workers within the City of Ann Arbor



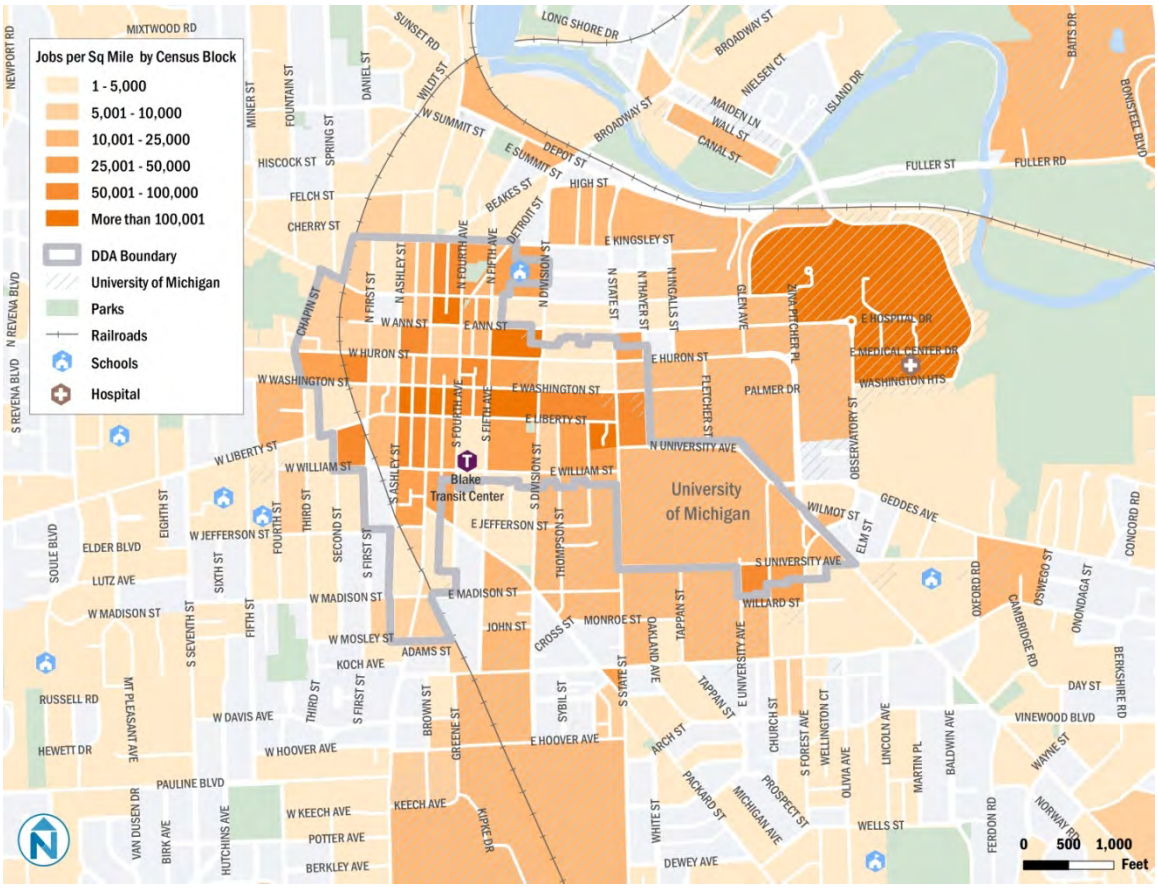
Data sources: 2013 LEHD, DDA, Washtenaw County GIS, City of Ann Arbor

Sources: 2013 US Census LEHD, DDA, City of Ann Arbor, Washtenaw County GIS

Note: For census purposes, University student residences are reported as their parents' place of residence, not University campus dorms.

Within the downtown itself, jobs are distributed throughout the DDA district, and along the Central Campus of the University, as expected.

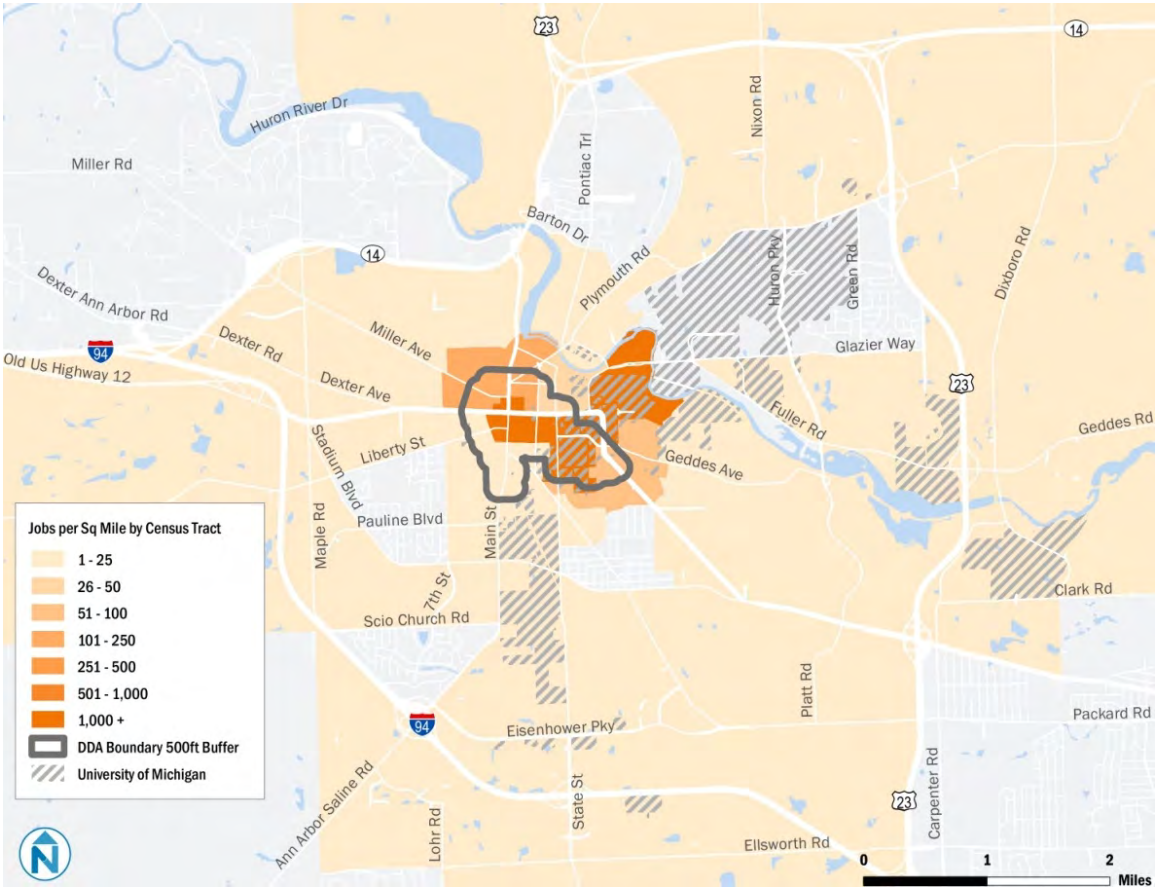
Figure 33 Employment Locations in the Downtown



Data Sources: 2013 US Census LEHD, DDA, City of Ann Arbor, Washtenaw County GIS

Lastly, the following map, depicting the employment locations of downtown residents, shows that the majority are employed either within or close to Downtown. This underscores the impact that downtown housing options can have on viable commute options, and the opportunity to increase the Walk share of downtown commuters. It also indicates that strong residential growth should be expected to increase the downtown employment population, and improve employee attraction/retention efforts among downtown businesses.

Figure 34 Employment Locations of Downtown Residents



Data Sources: 2013 LEHD, DDA, Washtenaw County GIS, City of Ann Arbor

PARKING MANAGEMENT

Ann Arbor DDA has long been a recognizable leader in innovative, strategic downtown parking management. Given control over a parking system that had suffered decades of neglect, it has shown the value that right-sized, well-maintained parking supplies can contribute to a vibrant, walkable university-town downtown. At the same time, it effectively checked the sense of entitlement to free and abundant parking that can quickly dominate conversations about parking demand and suburban competition. From the beginning, it insisted that parking should pay for itself, and that maintaining high quality walking, cycling, and transit options served downtown's competitive strengths better than trying to mimic suburban style parking accommodations.

PRICING

This well-established approach, and the related and remarkable economic success of downtown Ann Arbor, has resulted in parking rates that are distinctly high for a moderate-sized Midwestern downtown. The fact that these parking resources remain well-utilized attests to the fact that these rates have not exceeded their "market rate". In fact, some rates could be considered too low, resulting in a lack of availability in prime Downtown locations.

Employers interviewed had different views about parking pricing in the downtown. Many tech firms interviewed were more concerned about permit availability rather than price. Some retail stores and restaurants commented that for employees who work after 6pm, meters are free, and parking is not as much of a problem. However, they also commented that parking is a big barrier between these businesses and their customers, since night-shift employees end up occupying free on-street parking. Some employers interviewed mentioned people complaining about not wanting to come downtown at all because they do not want to "deal with parking" or planning downtown shopping trips specifically when parking is free. It is worthwhile to compare these rates to peer cities, particularly since the cost of Downtown parking continues to be a commonly-cited complaint about Downtown working, living, and visiting.

Peer City Parking Rates

Three cities that have taken a similar approach to the Ann Arbor DDA in terms of parking management are introduced below.

- Boulder, CO – A university town with a downtown parking authority that captures all parking revenue for investment in parking and mobility options to maintain a balanced, multimodal mobility environment that helps protect downtown walkability. Using parking revenue to fund TDM efforts is also a signature practice here, a central strategy of which is the Eco Pass, which is very similar to the go!pass.
- Madison, WI – A Midwestern, Big10 university town, with a reputation for multimodal accessibility and maintenance of a thriving Main Street style downtown.
- Grand Rapids, MI – The city's DDA plays a similar role in parking management to the Ann Arbor DDA. Grand Rapids, like Ann Arbor, is also one of just a few economically, thriving downtown's with a strong retail, commercial presence.

The following table presents a summary comparison of key rates among these peers, reference to the same rates in effect in downtown Ann Arbor.

Figure 35 Rate Comparison Table

Type of Parking	Boulder		Madison		Grand Rapids		Ann Arbor	
	Rate	Description	Rate	Description	Rate	Description	Rate	Description
On-Street	$1.25	Single Rate	$1/hr	Remote	$0.50	Remote	$1.60	Single Rate
			$1.75	Standard	$2.00	Prime Locations		
Off-Street: Hourly	$1.25	Up to 4 hours	$0.75	Varies by Location	$2.00	Varies by Location	$1.20	Garages
	$2.50	After 4 hours	$1.50		$3.00		$1.60	Lots
Off-Street: Monthly	$58.34	Low	$105 - $190	Resident/Carpooler	$27	Varies by Location	$30	Overnight
	$66.67	Mid	$125 - $220	Commuter	$154		$110 - $165	Standard
	$110	High	$180-250	24/7	$185-$212	Reserved	$205 - $225	Reserved

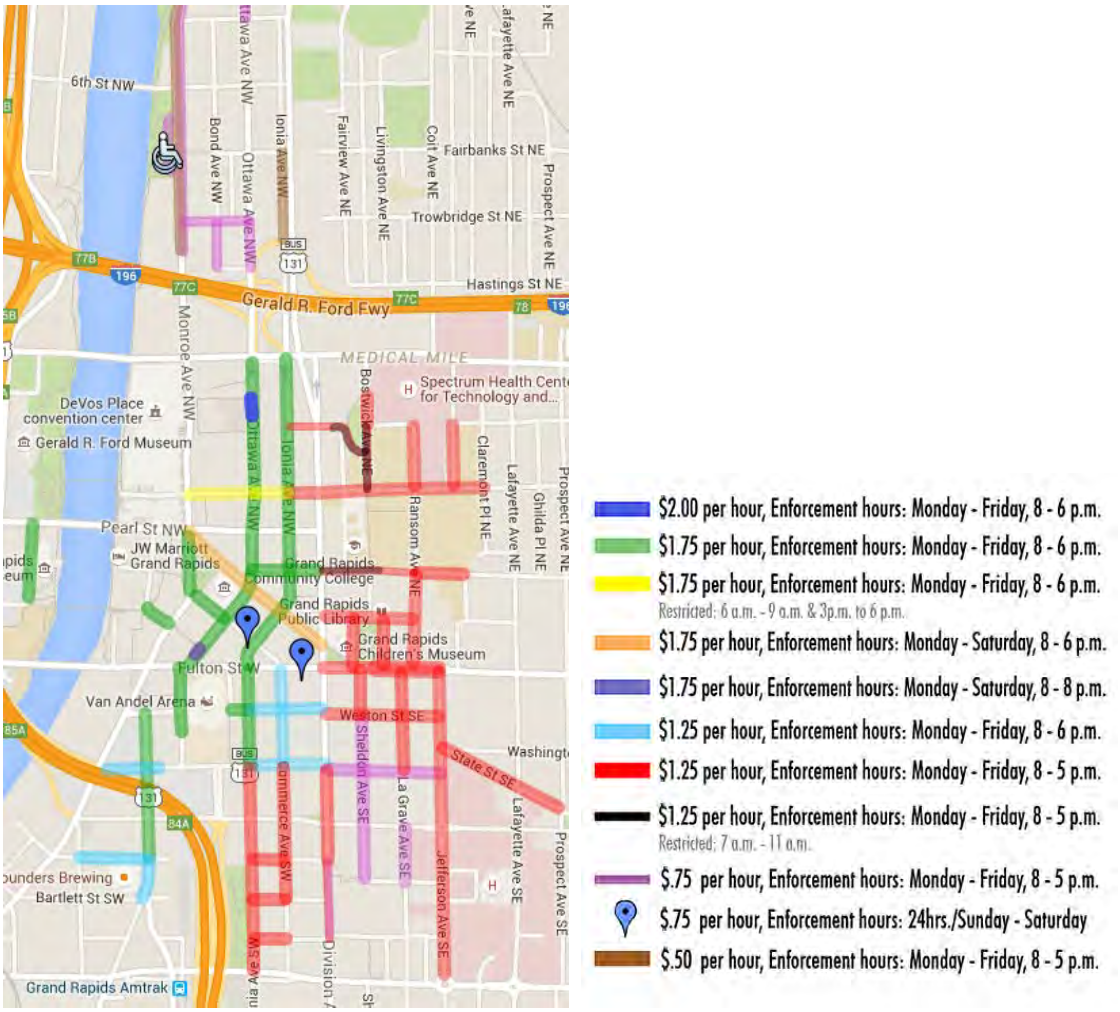
As shown, the DDA's current parking rates are consistent with the range of comparable rates among these peers. In fact, not one of the DDA's rates represents either the highest or the lowest among comparable rates for the same type of parking among the four peer cities. This indicates that the current DDA rates are within expected parameters for a thriving downtown, with a strong university presence, and a parking authority explicitly seeking to maintain an optimal balance between parking and multimodal levels of service.

Notable Practices

Aside from the rates compared above, there are individual rate strategies among these peer cities that are worth consideration for downtown Ann Arbor.

- Discounted carpool parking permits - Madison
- Discounted hourly and permit rates for motorcycles, including on-street – Madison
- Carpools skip wait lists for permits, in addition to receiving discounted rate. - Madison
- 1-hour of free off-street parking for daily visitors entering before 6PM – Grand Rapids
- No time limits on Saturdays – Boulder
- Prepay card allows garage customers to prepay, receive a 10% discount, and enjoy express lane entry and exit - Boulder
  - It is also worth noting that there is a wait list for all monthly permits in Boulder.
- Four, tiered on-street parking rates, based on demand and location – Grand Rapids

Figure 36 Tiered Parking Rates, Grand Rapids, MI



REGULATIONS

Time Limits

Time limits are broadly applied to on-street parking spaces across downtown Ann Arbor, as a complement to pricing, to help incentivize turnover and maintain availability for short-term parking. While a few cities have experimented with removing time limits in favor of using pricing alone to maintain availability, time limits remain a standard on-street management practice. The example of Boulder, above, however points to an approach that might work well in downtown, waiving time limits during off-peak times, even if meter rates remain in effect. Several cities have done this, in fact, when extending meter hour into evenings, waiving time limits during the newly-metered periods.

Commuter Permits

Supporting commuters' use of shared parking facilities is also a common practice among downtowns with publicly managed garages and lots. By absorbing commuter demand within

these public garages, monthly permits help to finance facilities that provide a generous supply of visitor parking during evenings and weekends. It also reduces the necessity for downtown employers to provide on-site parking, helping to preserve more downtown real estate for development, and to maintain traditional, walkable downtown land use densities and proximities.

Among the peers compared above, the DDA's current rates for monthly permits fall in the middle to low end. It is unsurprising that Boulder, with its distinctly low monthly permit rates, shares the DDA's predicament of having to "wait list" new permit customers. Like Boulder, all DDA facilities that offer monthly permits have a wait list for new permit customers, as detailed in the table below.

Figure 37 Wait Lists and Capacity at DDA Facilities

Measure	Ann & Ashley	First & Wash.	Liberty Sq.	Fourth & William	Maynard	Library Lane	Forest	First & William	ALL
# on Wait List	416	120	428	309	366	359	285	144	1,721
Capacity	839	242	573	847	770	744	850	108	3,986
List/ Capacity	50%	50%	75%	36%	48%	48%	34%	133%	43%

ZONING & DEVELOPMENT

The presence of a well-run, public parking system has allowed the City to enact zoning within the DDA District that is parking-exempt, with the exception of development projects that utilize premiums. Projects that utilize premiums may sign a contract for monthly parking permits within the public parking system or make a payment of a contribution in lieu.[49] The long-term result of this approach, in theory, minimizes the number of driveways along downtown streets, which makes for higher-functioning sidewalks and smoother traffic flows. It also reduces the cost of developing downtown land uses, generates more parking revenue to help maintain the DDA system, and incentivizes developers to embrace downtown's multimodal amenities. The majority of projects, however, have chosen to provide parking on-site, rather than monthly permits or parking in lieu to meet their requirements.

Even so, the DDA parking system is running out of capacity to continue to offer permits in support of new development. As such, it increases the likelihood that larger development projects will provide substantial on-site parking facilities, often above and beyond what was required. New zoning strategies may need to be developed if future development trends are to shift back to relying upon DDA parking resources for their parking needs.

TECHNOLOGY

Meters

As noted above, ePark pay stations appear to be much preferred to the standard, single-space meters. Utilization patterns within and outside of meter-enforcement periods indicate that much

[49] MuniCode, Ann Arbor, MI, Chapter 59 – Off-Street Parking: 169 Special Parking Districts, 2015, https://www.municode.com/library/mi/ann_arbor/codes/code_of_ordinances?nodeId=TITVZOPL_CH59OREPA_5_169SPPADI.

of this preference is likely linked to the credit-card-payment option they provide for on-street parking. Average payment-per-transaction data also indicate a willingness to pay roughly twice as much for spaces offering this convenience. Comparatively, the standard meters, require coins for payment, which is particularly burdensome when parking rates surpass the $1/hour level.

The DDA plans to replace all standard meters with ePark meters over time. The DDA does also offer a pay-by-phone option, but this is not widely advertised or used. Expanding and/or improving this pay-by-phone option may be the most expedient means of expanding the option to pay by credit card to all on-street meters, as these systems are generally compatible with standard meters.

Pay on Foot Machines

Hourly parking payments are accommodated in DDA structures via "Pay on Foot" machines, which have become standard practice for hourly and daily payments in public parking garages. By shifting payment activity to just before drivers return to their vehicles, exiting vehicles can be processed much more quickly. These machines also handle a variety of payment media much more effectively than the typical payment devices located at exit gates.

Monthly Permits

Transitions from the standard monthly permit to some kind of "pay as you go" pass, or "draw-down" account on a debit card, have been considered in the past. The first of these options is currently being piloted at the 4th & Washington garage. From the DDA's perspective, however, any change from the current permit technology must retain two elements of the current system.

1. Provide the same assurance of a parking space for "monthly" customers, even if they commute less frequently under the new pricing structure.
2. Ensure no significant loss of revenue.

The first of these can be achieved through standard facility-management processes similar to what is done today. Achieving revenue continuity is more complicated.

Any system that allows drivers to reduce their parking costs, by parking less frequently, helps to incentivize reduced drive-alone commuting. In particular, such pricing provides better options for those who primarily use alternative modes, but need to drive occasionally, as well as those who, by contrast, primarily drive, but would prefer to use a bike or bus from time to time. Under the current system, the only option is to pay for a full month's worth of parking, or to forego a permit altogether, and accept less desirable parking options on the days when they drive.

By design then, a pricing system that accommodates variable parking frequencies will result in an aggregate decline in parking revenue, per permit-holder, to the DDA. Simply put, on average, permit holders should be expected to park less frequently, saving money in the process. But, this reduced parking activity should allow the DDA to sell more permits at each facility, creating a system with less money coming in per customer each month, but more customers, and ideally more part-time use of non-driving modes for downtown trips.