



Demand Projections

Parking & TDM Study

Ann Arbor Downtown Development Authority

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PARKING

Downtown Ann Arbor has grown at a remarkable pace over the last 10 years. It has done so with far less parking than conventional demand projections would have suggested as the minimum necessary to support its new populations and land uses. More growth with less parking has proven to be a profoundly successful formula for Downtown, one that has saved the DDA and its stakeholders millions of dollars in unneeded garage construction debt. Less tangibly, but perhaps more profoundly important given sharply-rising demand for walkable-urban communities, this formula has kept Downtown distinctly walkable, bike-friendly, and transit-oriented.

However, it does appear that the DDA parking system, for the first time in several years, is at full capacity in terms of accommodating any new growth in midday parking demand. To anticipate the extent of the DDA's future parking supply needs, the following demand projections were developed in recognition of current constraints as well as the importance of maintaining the "more from less" parking approach so critical to continued growth.

Unless otherwise noted, all growth data was sourced from the 2015 State of Downtown report.

RESIDENTIAL GROWTH

Between 2010 and 2014, the Downtown population increased from 4,067 to 5,505, a total increase of 1,438 residents, and an average of 360 new residents per year. Between 2014 and 2019, the population is projected to increase by another 2,225 residents, to 7,730, an average of 445 new residents per year. This residential growth presents an opportunity to increase the share of Downtown employees who also live Downtown, and thus the number of Downtown commutes accommodated on foot, bike, or bus. However, residential parking also reduces daytime capacities for those Downtown employees who do drive to work.

Resident Parking Impact on DDA System

The table below presents average occupancy measures within DDA facilities for 2015 at the 2AM-3AM hour. Overnight hours reliably combine peak resident parking demand with minimal, non-resident parking activity. This presents the best time to gauge the peak impact of resident vehicles on DDA capacities, while recognizing that these measures may slightly-overestimate the impact, as it is likely that a modest number of non-resident vehicles are included in the counts.

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Figure 1 Average Overnight Occupancy in DDA Facilities

Facility	Supply	Overnight Occupancy Counts
4th & Washington	281	28
Washington & 1st	242	145
Maynard	797	102
Forest	854	105
4th & William	847	172
Liberty Sq	573	142
Ann & Ashley	839	199
Library Lane	744	85
South Ashley	138	15
First & Huron	168	19
Combined	5,483	1,013

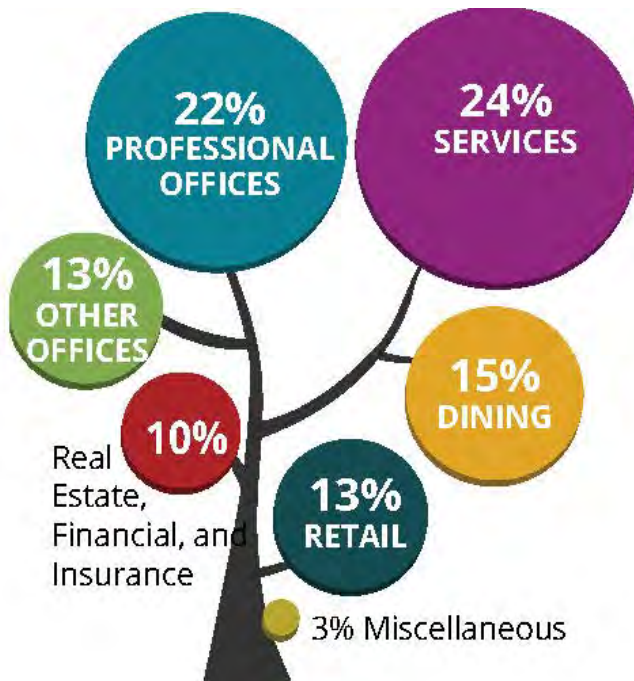
The Downtown residential population for 2015 is 5,505. An average occupancy of 1,013 vehicles for this population, suggests a demand ratio of ~1 occupied DDA-space per 5 Downtown residents. If this ratio holds, peak parking demand within DDA facilities, from the 7,730 Downtown residents projected for 2019, should average~1,422 spaces, an increase of 409 occupied spaces from today’s average.

Figure 2 Resident Parking Demand in DDA Facilities

Measure	2015	2019 Projection	Net Change
Residents	5,505	7,730	2,225
Estimated Peak Residential Parking Demand	1,013	1,422	409

COMMERCIAL GROWTH

Figure 3 Sectors of the Downtown Commercial Economy



The US Census estimates the current Downtown employee population to be 13,496. This is projected by the DDA to grow by ~1,000 employees, or 7.41%, by 2019. This growth rate is a useful proxy for growth of peak weekday parking demand, as many of these jobs will reflect growth of retail, dining, and other commercial activities that also generate visitor parking demand. 2015 parking occupancy surveys found weekday peak accumulation of 6,092 parked cars within on-street spaces and the DDA's off-street parking facilities. A 7.41% increase in this figure would mean a total of 6,543 cars seeking DDA-managed parking options in 2019, a gain of 451 cars over the 2015 peak.

Figure 4 Commercial Parking Demand in DDA Facilities

Measure	2015	2019 Projection	Net Change
Downtown Employment	13,496	14,496	1,000
Daytime Peak Parking Demand	6,092	6,543	451

Not all of these new jobs will be linked to sectors that generate visitor parking, however, and daytime demand measures also include many residential vehicles, the growth of which is accounted for above. The 7.41% growth rate should therefore be expected to slightly over-estimate overall, daytime parking-demand growth.

COMBINED DEMAND INCREASE

Residential and employment growth, based on the analysis above, is projected to increase peak demand for long-term parking within the DDA system by **860** vehicles in 2019, as shown in the table below.

Figure 5 Peak Parking Demand Projected Increase in DDA Facilities

Measure	Peak-Demand Increase
Residential Growth	409
Commercial Growth	451
Combined Impact when Peaks Overlap	860

Given the fact that, during daytime peak conditions, there is no excess capacity within the DDA system, on-street or off-street, this provides a base measure for a likely 2019 supply deficit. This base measure assumes that residential vehicle-ownership rates and mode shares for Downtown travel continue at present levels. The following sections focus on the likelihood that these factors will change, and to what degree such changes might relieve supply deficits by 2019.

MOBILITY

WALK (LIVE/WORK)

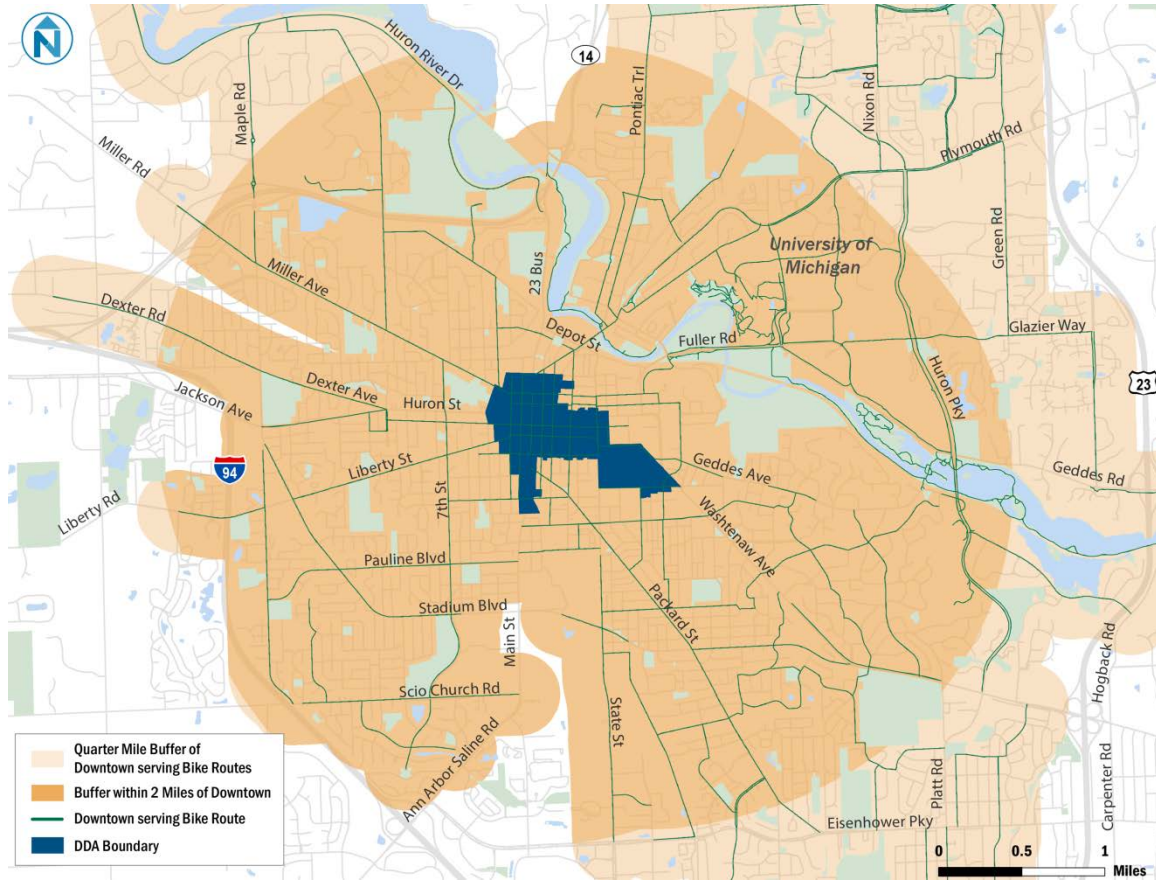
2,225 new residents are projected to call Downtown home by 2019. Many of these new residents will also be Downtown employees. Several stakeholders and studies have identified the importance of affordable housing in and around Downtown for supporting more commercial growth with less reliance on monthly parking capacities. However, residential growth will increase parking demand, in itself, as most Downtown residents are likely to maintain at least one private vehicle at or near their home.

From a sustainability perspective, this growth is a significant win, as Downtown residents are likely to leave their vehicles parked most of the time, and complete most trips via walking and cycling and transit. From a parking demand perspective, however, Downtown residential growth will bring sharp increases in supply needs unless vehicle ownership rates can be reduced. As such, realizing the full benefits of expected Downtown population growth, including more sustainable commuting patterns, will depend upon expanding TDM efforts to focus on residential parking demand.

BIKE

The map below identifies a bike-commute catchment area for Downtown. This is defined as areas within 2 miles of Downtown, and within ¼-mile of a designated bike route that serves Downtown. For the most part, those living within these areas can reach Downtown on bike within 15 minutes, primarily along designated bike routes. According to US Census data, 27.2% of current Downtown commuters live within this catchment area.

Figure 6 Bike Commute Catchment



Increasing this share to 30% by 2019 seems highly achievable, particularly if efforts to close bike-network gaps are prioritized within this catchment, in recognition of their potential to expand cycling access to Downtown. This would increase the current mode share for cycling to 8.16%, and shift 157 current commuters to bike commuting. Maintaining that mode share over time would shift ~238 potential drive-alone commuters to bike commutes in 2019, and raise the overall bike mode share for Downtown employees to 8.16%.

Figure 7 Bike Commuting Today and in 2019

Estimated Bike Commuters Today	Estimated Mode Share Today	Target Mode Share for 2019	New Bike Commuters by 2019
945	7%	8.16%	238

By 2019, a cycling mode share of 8.16% would translate to a gain of 238 new bike commuters.

Any increased bike commuting activity, however, is likely to peak during fine-weather months, and ebb significantly in winter, the time of year when parking demand is at its highest. As such, the benefits of increased bike commuting, in terms of reducing parking supply needs, will largely depend upon which modes seasonal bike commuters use during the “off season”. In many cities, a great bike commute nine months out of the year may not translate into significantly reduced parking needs, because there is no viable alternative to driving when weather reduces the appeal of cycling to work.

This underscores the value of Ann Arbor’s robust transit network, and the growth it has shown in attracting commuters away from driving options. getDowntown surveys consistently indicate that transit is, in fact, the preferred “off-season” mode of choice among most Downtown bike commuters. To the extent that transit remains the off-season/rainy-day preference among bike commuters, including as new riders join this population, bike-commute mode share gains will more-consistently translate into reduced parking needs.

TRANSIT

The number of estimated Downtown transit commuters in 2015 is 2,159, or ~16% of the estimated 13,496 Downtown employees. This should be expected to increase, based on historic trends alone. The fact that the Ride is also just beginning a period of major service expansions means that historic ridership trends should accelerate over the next several years. Annual service expansions have averaged ~7% in recent years. By contrast, a nearly 18% expansion is planned for 2016.¹

Impacts of Added Service

Added Service Hours

Figure 8 Average Weekly Service Hours by Year

Year	Weekly Service Hours	% Increase
2014	4,275	7.79%
2015	4,573	6.97%
2016 (planned)	5,395	17.98%

Assuming that expansions between 2017 and 2019 will at least approximate historical averages, calculated by staff at the Ride at 2.4%, —total, weekly service hours could reach 5,793 by 2019. This would amount to 1,220 service hours added to 2015 levels, a 26.7% gain.

¹ Based on service-hour data provided by staff at the Ride.

Figure 9 Annual Service-Hour Increases

Year	Weekly Service Hours	% Increase
2014	4,275	7.79%
2015	4,573	6.97%
2016 (planned)	5,395	17.98%
2017 (projected)	5,524	2.4%
2018 (projected)	5,524	2.4%
2019 (projected)	5,793	2.4%

Riders/Service Hour Trends

Annual data on ridership-per-service-hour², can be used to calculate the likely impact that these increased service hours will have on 2019 ridership levels. The table below presents a fairly consistent level of ridership, per service hour, over the last several years.

Figure 10 Passengers per Service Hour

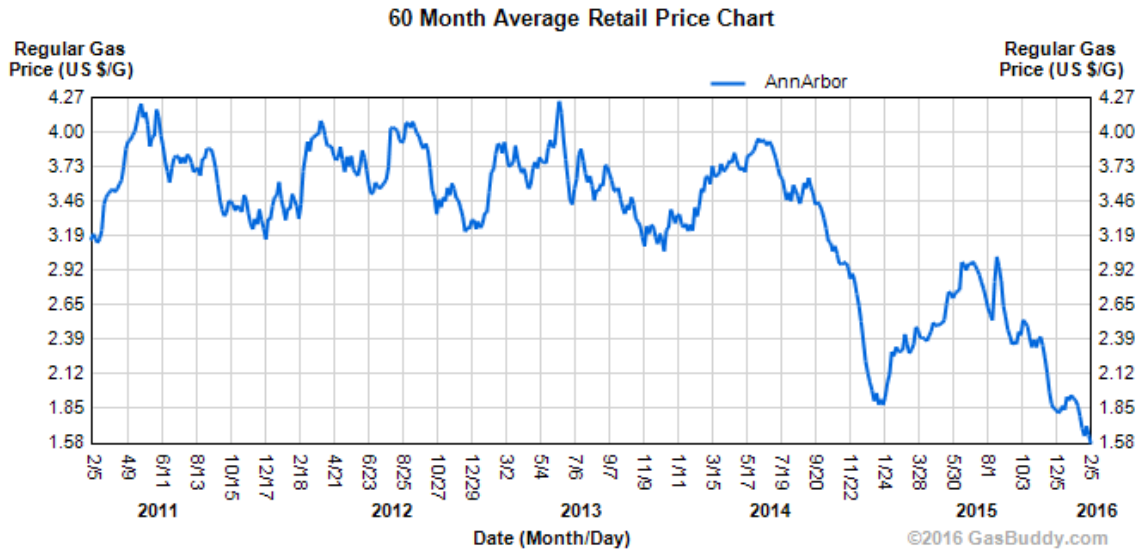
Year	Weekly Passengers per Service Hour
2011	31.9
2012	32
2013	31.4
2014	30.4
2015	28.5
Average	30.84

This would indicate that the Ride has been particularly successful in matching ridership gains to service expansions as it has grown. However, the five-year low experienced in 2015 coincides with a five-year low in gas prices, representing a decline in gas prices that has continued into 2016. The 2015 passengers/service-hour level of 28.5 represents a 7.59% drop from the five-year average. Planners at the Ride have noted further ridership declines have continued to drop along with gas prices into 2016.

²

<http://www.theride.org/Portals/0/Documents/5AboutUs/Facts/Performance%20Information/B%20Passengers%20by%20Service%20Hour%20Historical%20Productivity%20by%20Route.pdf>

Figure 11 Average Gas Prices in Ann Arbor 2011-15



To anticipate likely further gas-price impacts on ridership, at least into the first few years of the planned service expansion, we can assume that the 2016-2019 average will drop another 7.59% from 2015 level. This would project 26.3 weekly-passengers/service-hour over the expansion period.

Projected Ridership Impacts

The results of this reduced-ridership rate, over the course of the next four years, are summarized in the table below, and indicate a gain of 32,128 new riders per week, and 1,670,631 annually, by 2019.

Figure 12 Service Hours and Ridership

Year	Weekly Service Hours	Weekly Ridership	Annual Ridership
2015	4,573	128,033	6,657,722
2016	5,395	142,091	7,388,736
2017	5,524	145,501	7,566,066
2018	5,524	148,993	7,747,651
2019	5,793	152,569	7,933,595
2015-19 Growth	1,220	32,128	1,670,631

The cumulative ridership growth between 2015 and 2019 would represent a 25.09% increase over current ridership levels. If the same increase can be expected for Downtown commute ridership, the estimated 2,159 bus commuters in 2015 would be joined by 542 more by 2019. These 2,701 bus commuters would represent an 18.6% share of the 14,496 Downtown employees projected for 2019.

Strategic Expansion is Key to Realizing Full Potential

Key to achieving or exceeding these potential ridership gains will be:

- Strategic service improvements/expansions planned for the Ride;
- The potential for improved connections to residential areas toward the east, as expected from the establishment of the Regional Transit Authority in Detroit; and
- The realization of one or more of the rail transit services under consideration, and their inclusion of Downtown-service stations/stops.

The first of these is already being implemented. Of critical importance for ridership gains and Downtown commute shifts, will be the realization of meaningful service improvements between Ann Arbor and Ypsilanti. As Downtown housing costs continue to grow beyond the means of many Downtown employees, central Ypsilanti offers the most comparable, nearby Downtown alternative for those seeking a walkable, urban living environment. The robust and growing Downtown job market, however, means that many of these residents will work in Downtown Ann Arbor, not Ypsilanti. They should be expected to favor transit as much as or more than Downtown Ann Arbor residents, which could significantly extend the transit-commute catchment to the east of Ann Arbor.

Without more direct and faster transit connections between the downtowns of these two cities, this transit-oriented growth opportunity — which builds in significant economic potential for Ypsilanti and its downtown — may be lost. Planned service improvements between Downtown and Ypsilanti would reduce transit travel times to 45 minutes, a substantial improvement, but still more than twice the typical duration of a driving trip. Seeking a more transformative level of service improvement along this corridor is arguably as important as, and likely less expensive than, any of the rail-based services being planned for Ann Arbor.

MULTIMODAL SYNERGIES

Transit mobility is clearly the essential element within Downtown’s multimodal transportation network for reducing midday parking demand peaks, a critical strategy for Downtown continuing to grow more with less parking. Realizing full potential of transit, however, will, increasingly, rely upon complementary mobility networks and resources.

The role that transit plays in translating cycling commutes into reduced parking demand is noted above. But, bike racks on buses return the favor by increasing the appeal of bus commuting by closing first/last-mile gaps for many commuters. The advent of bike-share provides yet another option for making transit that much more accessible and expedient for more Downtown commuters.

Sourced-ride services like Uber and Lyft were noted by several walk, bike, and transit commuters as their “rainy day” option for getting to and from work. These services are rapidly evolving to respond to the emerging needs of travelers who wish to do without car ownership. As they do so, and as more Downtown employees consciously choose housing options that provide multiple modal options for their commutes, the gains in bike and transit commuting outlined above will, hopefully, prove to be cautiously conservative.

CONCLUSIONS

Achievable Modal Shifts May Fully Offset Projected Parking Demand Increases

Peak-hour parking demand is likely to increase by ~860 spaces by 2019, assuming mode shares remain as they are today. Transit commuting demand, however, could easily grow by over 1,000 commuters by that time. And, to the extent that bike commuting impacts are felt year round, primarily by increased reliance upon transit rather than driving during winter months, peak parking demand could be further reduced by ~238 vehicles.

Reasons Remain to Add More Parking

Excess Monthly Capacity Could Expand Hourly Capacities

Projections of parking demand reductions are primarily focused on monthly parking. To the extent that these reductions are realized, more short-term parking could be accommodated within spaces added to meet potential weekday-peak supply deficits. Current conditions likely frustrate many visitors seeking off-street parking during weekday middays, when many DDA facilities, having approached capacity-level occupancies, are closed off to non-permit-holders.

Excess DDA Capacities Are Unlikely to be Excessive for Long

DDA supply-expansions are unlikely to significantly outpace Downtown growth, due to:

- The escalating value of Downtown land;
- The scarcity of suitable site opportunities;
- High design and construction standards/requirements for any Downtown project; and
- The DDA's policy that parking expansions must be paid for by parking revenues.

In an environment of continued growth, this combination makes it highly unlikely that supplies would ever get too far ahead of demand for parking that is priced to reflect its true cost. Further, the pace of supply expansion, slowed by these same factors, creates time and opportunity for Mobility and TDM efforts to reduce parking demand, and potentially slow the rate of supply expansion.

A Modest Shared-Parking Surplus Can Incentivize Downtown Growth

The implications of over-expanding shared parking supplies are much less worrisome, compared to overbuilding private/accessory parking. To the extent that increased supply can shift more parking demand away from private/accessory facilities, there may even be an upside to brief periods of oversupply. Public parking can support a wide range of development across a broad area, especially given the high level of walkability across Downtown.

In such a context, excess capacities need not remain underutilized for long should demand fail to achieve projected levels in the near term. This new capacity can be used to incentivize and accommodate further development. To the extent that this shifts regional growth toward Downtown, toward smart growth rather than regional sprawl, this will be to the long-term good.

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Downtown residents will drive far less than they will living elsewhere in the region, even if they don't reduce the number of cars they own. More than half of new Downtown employees will likely commute via walking, cycling, and transit. In this context, and as long as demand for Downtown development continues to grow, transitioning to a model of maintaining a modest level of excess parking capacity within the DDA system may be the most important means of supporting sustainable growth for Downtown, Ann Arbor, and the broader region.