# HOW TO DO A PARKING STUDY

A lack of knowledge about parking availability or utilization in a district can inhibit development and access to economic, educational, and recreational opportunity. Local parking surveys typically aim to discern (1) how much parking is provided in a specific study area, (2) how parking is being utilized, and (3) if demand exceeds capacity. Whether in an existing town center or for new development, an accurate inventory of parking availability and use is needed to answer the question of current and future parking demand and provision. Any discussion of parking needs should begin with a survey of existing use. Many simple counts can be accomplished by community staff or local volunteers with minimal training. The guidance below is intended primarily for community staff and local volunteers in designing a survey and collecting parking data.

In addition to identifying who is parking and for how long, parking surveys can also identify the location of unused spaces nearby that could be better utilized. For instance, church parking could be used for overflow parking for the few peak shopping days of the year, rather than building to peak parking needs which will remain empty (and not generating profits and taxes) for most of the year. Surveys are also useful for identifying other programming challenges, such as potential shortcomings of existing signage, spaces where vehicles routinely park illegally, and drainage or other infrastructure flaws rendering spaces unusable.

# **BUILDING THE SURVEY**

#### WHY DO THE SURVEY?

Before determining the scope of the parking survey, it's helpful to identify the motivations driving the study. In other words, what do you want to know about parking within a specific area and why? Answering this question can help establish:

- the size of your study area,
- the need to inventory public or private, on or off-street parking,
- the need to document occupancy and/or duration,
- the need to understand vehicles' origin
- days of study, whether during the week and/or weekend
- time of interest
- seasons to be documented (spring, summer, fall?)

**DETERMINE STUDY SCOPE** Based on your answer to the questions above, you will have identified the proper location, dates, and times to conduct your parking survey. For the integrity of the survey's results, it is critical to document a 'typical day' in the study area. When conducting weekday surveys, this is typically a Tuesday, Wednesday, or Thursday during which there are no known special events occuring and the weather is fair. For instance, parking data could be skewed for a commercial corridor if a restaurant were having its grand opening on the day of data collection. In this case, the information would not be representative of usual behavior because grand openings tend to attract more customers than a standard day. Similarly, it is vital to note the context of the study area.

#### **MAPPING THE ROUTE**

Try to walk in the direction the vehicles are facing on the street; this will help facilitate license plate data collection. If multiple people will be par-



ticipating in data collection, ensure that they start and end in the same location, preferably near a coffee shop or library where they can lay over indoors.

#### INVENTORY EXISTING PARKING

The perimeter of the study area should be informed by the maximum distance someone with business in the center of the area would park and walk, about a 5-10 minute walkshed. If spillover parking is a concern, extend the boundaries by several blocks. Within the study area, be sure to note the number and location of public and/or private parking spaces, as well as existing regulations. If spaces aren't marked, take the maximum number of vehicles parked and estimate how many additional vehicles could be parked without blocking other vehicles, fire lanes, trash receptacles, etc. If needed, estimate the number of spaces using the assumption that each additional parked vehicle will use approximately 25 feet of curb space. The map should also identify no parking areas, locations where parking is metered and the applicable rate, and the condition of signage. Include bicycle parking racks, rings, and all types of equipment specifically designed for bicycle use in this inventory.

#### STAFFING CONSIDERATIONS

DATA COLLECTION SHEETS Depending on the size of your study area and the interval of data collection, staffing needs can vary. Be sure to schedule staff on a "typical day" and ensure that they are familiar with the study area and data collection method prior to the day(s) of interest.

Data collection sheets should be numbered and include one line for each parking space. Remember to include landmarks like driveways, curb cuts, hydrants, cross walks, and street names to help data collectors with wayfinding and parking space identification while on their routes. For a sample data collection sheet, please see the attached parking study conducted in Arlington, MA.

# CONDUCTING THE SURVEY

#### LOGISTICS

Routes should be consistent, in that they should begin at the same time (whether on the hour or half an hour) and be walked in the same direction every 30 or 60 minutes. Counts should occur at least 3 or 4 different time periods during the survey day, including all times with peak demand. Depending on the purposes of the study, weekend demand may also be of interest. Data collectors should document improper activity, such as double parking, blocking driveways, unsanctioned loading, etc., and take photos where applicable. See "Sample Instructions" (attached as an appendix) for more information.

#### **CAPTURING DURATION**

Knowing how long cars are parked can inform different parking pricing or time restriction policies, may uncover opportunities for sharing spaces, and can provide helpful information to businesses looking to move to an

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DURATION

Vehicles parked during a given time period divided by the total number of spaces is occupancy. On-street parking occupancies of 85-90% are usually considered the highest acceptable target, since someone looking for a space will not find an empty one easily. Occupancies above 100% are possible, when vehicles park illegally or in unofficial spaces. Although you will be able to summarize the activity at each parking space, it is often helpful to group data by city block or by row in a parking lot. They can then be grouped by direction (north or south side of street) and type (public or private parking). Occupancy data provides concrete information to support or refute claims of inadequate parking availability. High occupancies in one area combined with lower occupancies nearby indicate an opportunity for parking management. In this scenario, excess demand should be reallocated to the nearby available supply; often, a lack of knowledge of nearby spaces or restrictions on those who can utilize the parking resources contributes to the mismatch between supply and demand.

The length of time a car remains in a given parking space is its duration, and can be estimated from the partial license plate information. Calculate the duration for each vehicle observed, and then calculate an average duration for all spaces by parking area and time period. Duration data can be used to understand parking behavior in order to redefine time restrictions and parking fees, and use existing spaces more efficiently. This analysis should reveal if there are different parking behaviors in different

areas, and different time periods.

Create a spreadsheet where you can summarize the data that was collected. Keep occupancy and duration results separate, at least initially, by location, time of day and day of week. Graphics and displays on maps will be helpful in explaining results. For an example, see the following section Sample Parking Study: Arlington, MA.

area. Duration counts require that the first 3 or 4 license plate numbers be documented and that data collectors return frequently (at least once an hour) to a space to record this information. For high parking turnover locations (post offices, banks, convenience stores, etc.), check back every 15 minutes if possible. This is usually best accomplished by numbering all spaces on the map, and by providing both maps and numbered sheets

Record the numbers of cars parked legally, as well as double parked vehicles, those blocking other vehicles in lots, and any large trucks blocking more than one space. To accurately capture demand, count the number of

with room to record the partial license plate numbers.

bicycles parked as well.

### ANALYZE THE DATA

DATA COLLECTION

#### **OVERVIEW**

OCCUPANCY

3

#### TURNOVER

The inverse of duration, turnover describes the number of cars that can use a space in a given period of time. For example, for an average duration of 15 minutes, 4 different vehicles per hour can park in the designated space. If the turnover/duration remained unchanged, 32 different vehicles could be accommodated in that one space over an 8 hour period.

# **PRESENTING FINDINGS**

#### **SUMMARIZE RESULTS**

Create an easy to understand summary that can be shared with stakeholders. Here, charts, maps, and photos can be used to concisely illustrate findings and support a narrative that answers the questions initially motivating the study. As a rule of thumb, results should be compared to an 85% occupancy guideline. If occupancy is above this threshold, demand exceeds supply; if occupancy is below this threshold, supply exceeds demand.

#### **IDENTIFY NEXT STEPS**

Depending on findings, potential next steps can vary.

- Did the study area exhibit high levels of parking occupancy? Consider partnerships with underutilized private lots.
- Is there a surplus of parking? Consider ways in which the space can be used for more productive outcomes, such as creating a parklet or incorporating green space. Perhaps additional signage is needed to direct people to these locations.
- Are more parking management techniques needed? Consider enhancing or updating signage, increasing enforcement, or charging for parking.



# SAMPLE PARKING STUDY: ARLINGTON, MA

Excessive roadway congestion caused the city of Arlington, MA to investigate the feasibility of a priority bus lane to expedite travel times for commuters on board high-volume, high-delay bus routes along the Massachusetts Avenue corridor. Road width permitting, a temporary dedicated bus lane would eliminate parking in the inbound direction during peak morning commute hours to create the necessary space to accommodate the lane. Prior to conducting such a pilot, MAPC, in partnership with the Town of Arlington, and the Massachusetts Bay Transportation Authority (MBTA), completed a parking survey to determine supply and demand during a standard weekday's hours of interest.

The team began by surveying the corridor, noting the number of spaces provided and the regulations of those spaces, and bus stops (see below).



Next, the team created a survey route and data collection sheets (see below). These sheets include geographic descriptions, a row for each parking space, a description of the relevant regulations, and columns for each time period. Please note that each data collection box is large enough to fit relevant license plate information for duration analysis.

#### Arlington Data Collection Wednesday, May 9

Parking Space	Stripe?	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM			
		Start	on Mass Ave at Route 16, hea	ding towards Arlington Center					
No Parking									
Cross Sunapee Road									
Bus Stop									
Driveway									
2 Hour 1	Y								
2 Hour 2	Y								
Crosswalk WITH CURB I	EXTENSION								
2 Hour (assume) 1	Y								
2 Hour (assume) 2	Y								
			Drivew	ay					
2 Hour 1 Y									
			Cross Henders	on Street					
2 Hour 1	Y								
2 Hour 2	Y								
			Drivew	ay		1			
2 Hour 1	Y								
2 Hour 2	Y								
2 Hour 3	Y								
			Drivew	ay		1			
2 Hour 1	Y								
			Cross Teel	Street					
No Standing									
Crosswalk									
			Drivew	ay					
Bus Stop				-					
			Cross Lee Terrace (loo	ks like driveway)					
2 Hour 1	Y								
			Drivew	ay					
2 Hour 1	Y								
2 Hour 2	Y								
2 Hour 3	Y								
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On Wednesday, May 3rd, 2018, MAPC collected occupancy data from 6 to 11am. The route, in grey on the following map, began at the intersection of Massachusetts Avenue and Alewife Brook Parkway (lower right corner of the map) and continued north, looping back around at Massachusetts Avenue at Pleasant Street (upper left corner of the map). Walking in the direction cars were facing on the street facilitated data collection, as collectors could easily read the rear license plate information. Occupancy information was recorded as such and corresponds to the purple mapped segment on the following page.

Parking Space	Stripe?	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM
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Arlington Data Collection Wednesday, May 9



Subsequently, the team performed an analysis of existing use (see below) and determined that there was an adequate supply of parking to meet demand during peak AM commute hours if one side of parking were removed to accommodate the priority bus lane.



**Massachusetts Avenue Parking Analysis Occupancy vs. Capacity** 



Informed by this parking analysis, the Town of Arlington successfully piloted the priority bus lane Monday through Friday, 6 to 9 AM, from October 9th to November 9th, 2018. The pilot was so successful, the morning bus lane is now permanent.



# SAMPLE INSTRUCTIONS FOR DATA COLLECTORS

WHY ARE WE DOING THE PARKING STUDY?	The Town wants to know how people are utilizing spaces currently and if they should start charging for parking. The Town is interested in creating a parking benefit district.
SCHEDULE (5/3)	6AM to 1PM: Kayla and John Please arrive a few minutes early.
DATA COLLECTION	<ul> <li>There are two pre-determined routes, and you will walk the same route every hour. Start your route on the hour.</li> <li>Note only the first or four three digits of the license plate</li> <li>If the same vehicle is present the next hour, use an arrow to the next box. If there is no car in the space use an X or a dash.</li> <li>Your first route will take you the longest, as you get familiar with the route and process</li> </ul>
DOWN TIME	<ul> <li>You will generally be working for 30 minutes, then resting for 30 minutes</li> <li>There are some coffee shops for snacks, and Town Hall should have bathrooms for you to utilize.</li> </ul>
TRAVEL TO & FROM THE SITE	Try to park outside of the study area. If you park within the study area, park in a quiet (not busy) area and do not include the car in your data collection sheets.
WHAT TO LOOK FOR	<ul> <li>Parking spaces that cannot be used – not wide enough, blocked by something, etc.</li> <li>Illegal parking – in no parking zones, in front of hydrants, etc.</li> <li>Dangerous parking spaces (note any near accidents while backing up from angled parking spaces, etc)</li> <li>Bike use/parking</li> <li>Handicap parking – are handicap people using the spaces (are there placards?). Is there loading/unloading space available at this location for people in wheelchairs?</li> <li>Any local events going on that may be impacting parking demand</li> <li>Trucks loading in parking spaces</li> <li>Please take pictures of noteworthy things!! Pictures help immensely and they are a great way to document issues in the report. (cell phone pictures are perfect – no camera necessary)</li> <li>Basically note anything and everything that might be helpful as we pull together recommendations for the area – you will be my eyes and ears and there's no such thing as too many notes!</li> </ul>



## HOW TO RESPOND TO QUESTIONS

#### THINGS TO WEAR & BRING

- Say you are doing a study for the Town
- Try to stay "under the radar" if possible so people don't change their parking habits
- The Town will supply a letter that you can show if people are concerned. The Police have been notified as well.
- Bring some business cards in case people want to follow up
- Water
- Snacks/Lunch
- Stuff for sun: Sunscreen/hat
- Comfy shoes (you will be walking about 1 mile each hour). I usually bring flip flops and sneakers so I can change if one pair of shoes is bothering me
- Something to fill your down time (book, music, etc.)
- Phone (you'll need the camera and clock)

POST-DATA COLLECTION

- Save pictures in job folder
- Send me notes/observations (or write on data collection sheets), or tell me in person

