RIVERSIDE MASTER PLAN

PARKING PROGRAM

Do the 2758 planned parking spaces meet the needs of this development?

	development total		initial estimated demand rate		resulting peak demand
Retail	64,176* ft²	x	1.95 spaces/1000 ft²		125 🛒
Hotel	154 keys	x	0.74 spaces/key		114 🛎
Residential	524 units	x	1.12 spaces/unit		587 🏠
Office	523,509* ft²	x	2.39 spaces/1000 ft²		1251 💼
MBTA					958** Ⓣ

Total: 3035

* Square footage cited here does not include mechanical penthouse space.
** This is not a peak demand number, but rather an agreed-upon number of dedicated spaces.

Where do these peak demand rates come from?

These rates are based on the Institute of Transportation Engineers' (ITE) *Parking Generation Manual*, 5th edition,* which is widely considered the national standard for evaluating parking demand.

This manual is built upon documented usage comparisons gathered nationwide.

ITE's rates will <u>over-calculate</u> parking needs for:

(a) more modern developments, thanks to the necessarily historic nature of the data pool and shifting trends in mode usage.

(b) environments that have higher rates of alternative transportation usage than the nationwide average.

(c) mixed-use environments, since the majority of the cited studies are of single-use suburban developments.
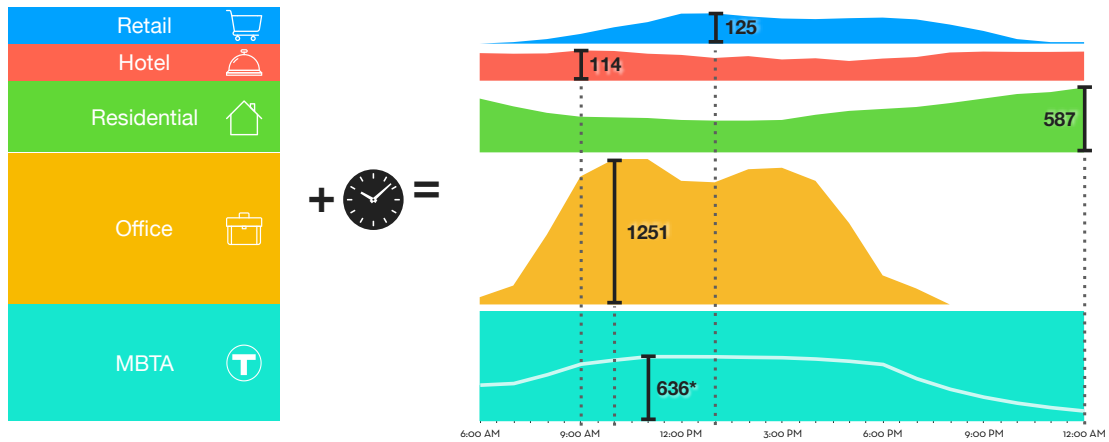
For all of these reasons, the ITE rates cited are meant to be used <u>in conjunction with</u> an in-depth consideration of local conditions. We will return to these local conditions below.

Why aren't we providing 3035 parking spaces?

Just looking at total <u>peak</u> demand is misleading, because each of these peaks occur at a different time of day. For example, many residential users will have left before most of the office users arrive. When we take into account time of day, the demand on an average weekday looks more like this:

Retail 🛒
Hotel 🛎️
Residential 🏠
Office 💼
MBTA Ⓣ

+ 🕙 =

125
114
587
1251
636*

6:00 AM 9:00 AM 12:00 PM 3:00 PM 6:00 PM 9:00 PM 12:00 AM

* Per agreement with the MBTA, 958 spaces are reserved. Current observed demand (shown by the white demand curve) is lower and therefore allows for significant future MBTA ridership growth.

Looking only at peak demand numbers without considering how those numbers play out over the course of a day means a lot of empty parking spaces.

Current Riverside Parking Lot at Projected Weekday Peak

Why is
<u>too much</u> parking
bad?

- There is a predictive <u>correlation</u> between more parking and increased car use.*

- The construction of parking drives up the cost of housing in the midst of an affordability and supply crisis.

- The construction of parking competes for financial and spacial resources with more productive (e.g. tax-producing) land uses.

* See, for example, C. McCahill & N. Garrick, "Automobile Use and Land Consumption: Empirical Evidence from 12 Cities" (2012) and R. Weinberger et. al., "Guaranteed Parking, Guaranteed Driving" (2008).

Why is
<u>too little</u> parking
bad?

- Users end up parking where they aren't supposed to, which can cause a nuisance for surrounding neighborhoods.

- Users drive away from the development's businesses without even leaving their cars.

- Cars backed up looking for parking is an efficiency issue.

- The <u>perception</u> of too little parking makes residential and commercial units harder to rent.

So how do we figure out
what is 'just right'?

In order to determine <u>actual</u> peak demand — peak demand that considers how different types of demand change over the course of the day — we need to identify when <u>combined</u> demand will be the highest. For this development, peak demand across all parking types (without yet considering context) will occur at **11am**.
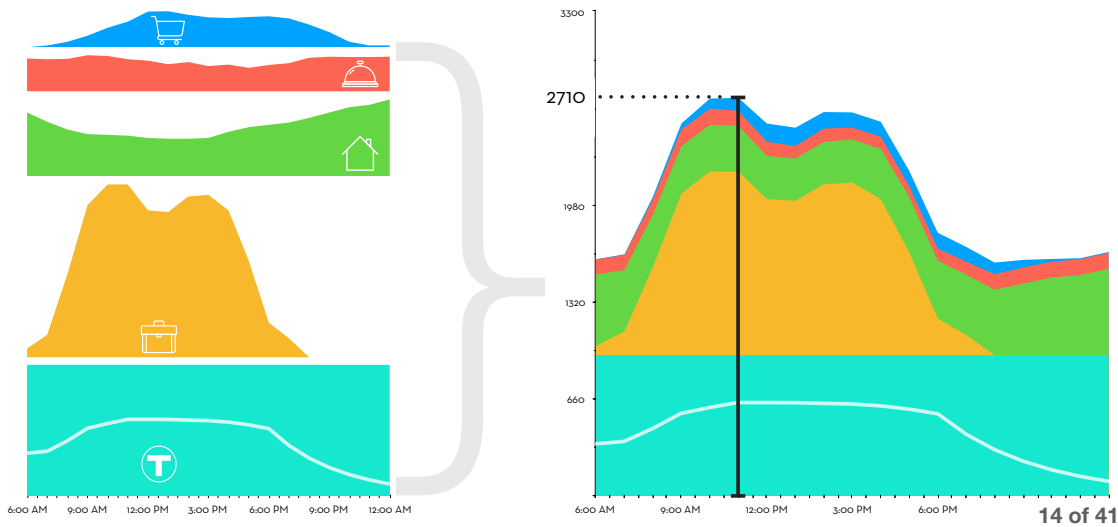
If peak demand is 2710, then how could 2758 spaces be sufficient?

2710 parked cars would be 98.3% capacity. Especially when parking is split between buildings, you generally want peak demand to stay around 10% <u>below</u> the total parking capacity to allow for smooth movement through the development.

It wouldn't be. However, **this number still isn't realistic**, because it does not yet take into account this particular development's local conditions, nor any TDM measures:

1. **This is a transit-oriented development located directly alongside (and providing significant support for) a major MBTA station.**

It will be a natural destination for folks seeking to live, work, shop, eat or stay without the need for a car, or with reduced reliance upon their car.

2. **We know that people in Newton regularly use other modes.**

According to the 2013-2017 American Community Survey (ACS) conducted by the U.S. Census Bureau **31-45%** (depending upon how you bound the geography) of folks commuting in and out of the area surrounding the development are doing so by some means *other than driving alone*.

This might mean that they are **carpooling or vanpooling, taking public transportation, walking or biking,** or **working from home.** We would expect rates of alternative transportation usage to be especially high near a light rail station.

3. **This is a mixed-use development.**

Residents and employees can just walk down the block to fulfill many of the daily needs that would otherwise require a car trip ("Internal Capture"). Internal Capture is a little bit about lifestyle choices. After all, many people will make the choice to live as close as possible to where they work if that option is available to them.

But it is also a lot about basic human laziness. *Why would you drive to get coffee if you can just walk around the corner?* Similarly, why would you drive into a development to *stop* for coffee if you know that that coffee shop will already be full of the development's own residents?

Therefore:

- Employee parking demand (which accounts for most of the office demand and some of the retail) was adjusted downward by 15% for not driving alone.
- Residential parking demand was adjusted downward by 5% for less driving alone leading to lower car ownership on-site.
- Visitor parking demand (which accounts for most of the retail demand and some of the office) was likewise adjusted downward by 5% for not driving alone.

These are far more conservative reductions than would be implied by the American Community Survey (ACS) statistics just cited.

- Retail parking demand was further reduced by 20% for internal capture.
- Residential parking demand was further reduced by 5% for internal capture

These are, again, conservative estimates for internal capture, especially for a transit-oriented development. However, even for those who are skeptical of this latter category of deductions, the <u>combined</u> reduction for alternative transportation modes *plus* internal capture still comes out to be a lower reduction than would be justifiable <u>just</u> on the basis of ACS data.

Taking into account these reductions, our updated rates and resulting <u>reduced peak values</u> look like this.

			reduced demand rate		reduced peak demand	*effective* 11am demand rate	11am demand
Retail	64,176* ft²	x	1.466	spaces/1000 ft²	94	1.041	67
Hotel	154 keys	x	0.626	spaces/key	96	0.556	85
Residential	524 units	x	1.011	spaces/unit**	(530**)	0.536	281
Office	523,509* ft²	x	2.055	spaces/1000 ft²	1076	2.055	1076
MBTA							958

Total: 2467

* Square footage cited here does not include mechanical penthouse space.
** Since residential peak occurs at 12am and the 587 residential spaces cited on Slide 3 are held reserved <u>only</u> from 6pm-8am, the adjusted peak value of 529 is not actually found anywhere on the demand curve shown on the next slide. However, it is used to calculate the <u>shared</u> demand from 8am-6pm.

Taking into account these reductions, our updated graphs look like this. Note: the final combined peak occurs at 11am.
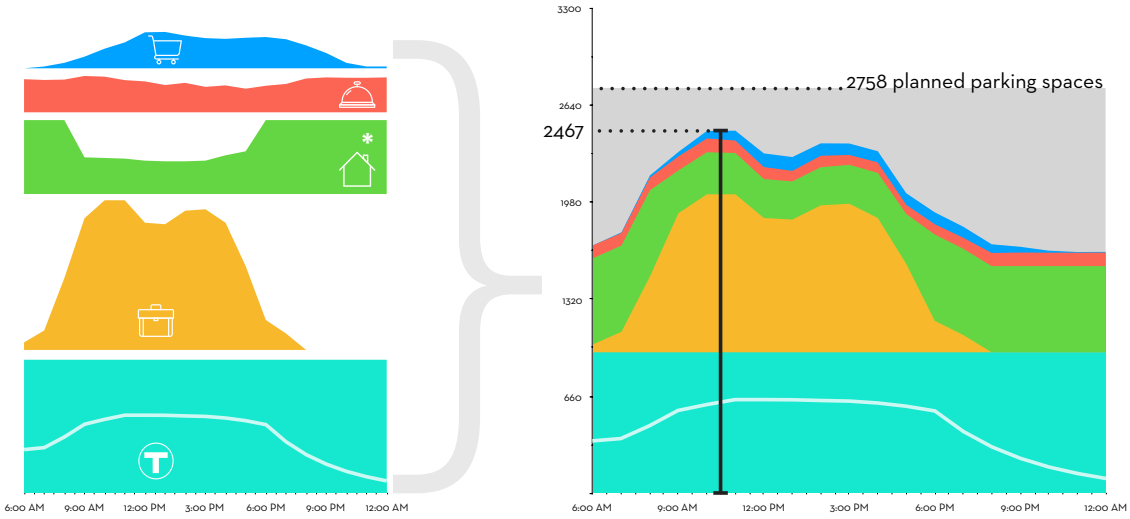
2758 planned parking spaces

**That means that
at the peak period of 11am
there would be <u>291</u> available spaces.**

**The combined parking stock
would be <u>89.4% full</u>.**

How does this work
in practice?

23 of 41

NORTH GARAGE

L3	201
L2.5	224
L2	200
L1.5	163
L1	76
P3	248
THIS LEVEL P2	16
P1	215

Digital Parking Signage at Providence Place Mall   24 of 41

VPNE also has extensive experience with floor valet systems for maximizing parking garage space in unusual situations or high-volume environments.

Floor Valet at 101 Seaport

What about
a 'worst case scenario'?

The graphs below highlight the **parking "surplus"** across the workday, combining observed surplus from the MBTA parking field (yellow, which would be used first for most special events) with the planned non-MBTA surplus (pink). Values are provided for the MBTA-specific surplus and the total surplus.

2758 planned parking spaces
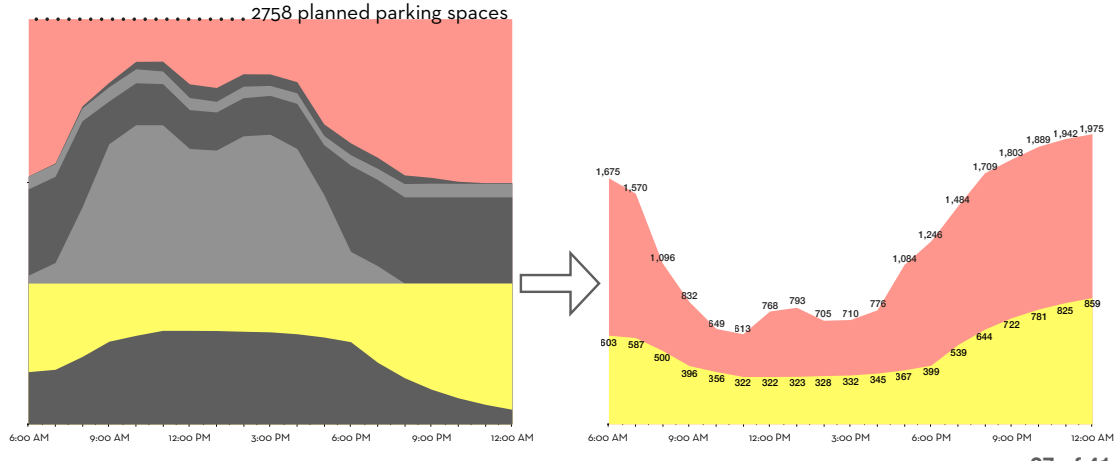
Looking at both observational data and MBTA revenue data, **a weekday Red Sox double-header** constitutes the currently-known 'worst case scenario' for special event parking at Riverside. However, as shown below, the parking surplus is more than adequate for this situation.
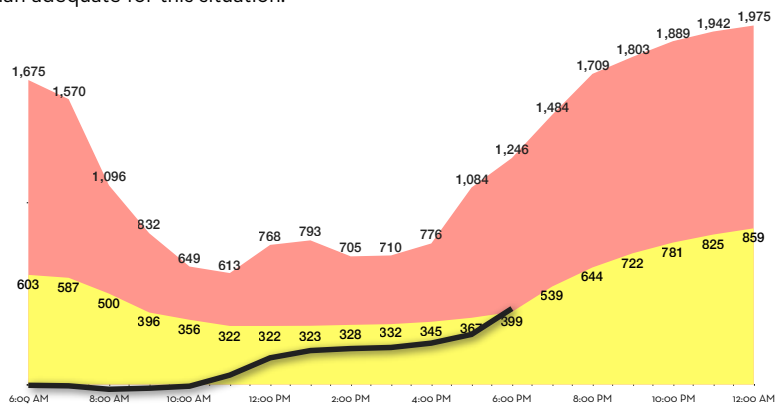
The heavy black line shows the increase in cumulative MBTA transactions at Riverside during a weekday double-header, as compared to cumulative transactions on a normal weekday. By 6pm, the potential demand still *barely* spills out of the reserved MBTA spaces. This leaves **825 additional surplus spaces at 6pm**—meaning that the development could actually accommodate *an additional* evening event.

Building Site Plan

Building 1

361,833 ft² office space   73% in   B1 parking
                           27% in   B9/10 parking
4,500 ft² retail space   100% in street parking

B1 Parking Supply

546 spaces devoted to B1 office (at office peak)

Building 2

154 keys hotel keys 100% in B9/10 parking

B2 Parking Supply

0 spaces

Building 3

161,676 ft² office space   53% in B3 parking
                            47% in B9/10 parking

B3 Parking Supply

177 spaces devoted to B3 office (at office peak)

Building 4

109 units   residential   100% in B9/10 parking
3,668 ft²   retail space   100% in street parking

B4 Parking Supply

0 spaces

Building 5

55 units residential 100% in B9/10 parking

B5 Parking Supply

0 spaces

10

9

5

Building 6

69 units residential 100% in B9/10 parking

15,384 ft² retail space 100% in street parking

B6 Parking Supply

0 spaces

10

9

6

Building 7

| 62 units | residential | 100% in | B9/10 parking |
| 11,137 ft² | retail space | 100% in | street parking |

B7 Parking Supply
0 spaces

10

9

7

Building 8

| 81 units | residential | 100% in | B9/10 parking |
| 3,380 ft² | retail space | 100% in | street parking |

B8 Parking Supply
0 spaces

10

9

8

Building 9/10

148 units residential 100% in B9/10 parking

26,108 ft² retail space 100% in B9/10 parking

B9/10 Parking Supply

1979 spaces total

958 MBTA nested spaces
198 spaces for B1 office (at office peak)
96 spaces for B2 hotel (at hotel peak)
155 spaces for B3 office (at office peak)
110 spaces for B4 residential (at residential peak)
56 spaces for B5 residential (at residential peak)
70 spaces for B6 residential (at residential peak)
63 spaces for B7 residential (at residential peak)
82 spaces for B8 residential (at residential peak)
150 spaces for B9/10 residential (at residential peak)
38 spaces for B9/10 retail (at retail peak)

Looking at Parking Garage 9/10, it's once again important to remember that all of these peak usages do not occur at the same time of day. The graph below shows the combined demand across the course of the day for Garage 9/10.

1979 planned parking spaces

1809

B9/10 retail
B2 hotel
B9/10 residential
B8 residential
B7 residential
B6 residential
B5 residential
B4 residential
B3 office
B1 office
MBTA nested spaces
MBTA demand

Street Parking Supply

56 spaces   total

7 spaces	for B1 retail (at retail peak)
5 spaces	for B4 retail (at retail peak)
23 spaces	for B6 retail (at retail peak)
16 spaces	for B7 retail (at retail peak)
5 spaces	for B8 retail (at retail peak)