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Reflections on Market Square Development- Parking Strategy Options

Part of Downtown Parking Strategy for Stratford
Ontario



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5/20/2016

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Scope of this Review

Over the course of the project to formulate a parking strategy for the downtown the re-development of the Market Square has been raised. While the scope of the parking strategy is broader in terms of operations and short and long term remedies to the public parking services, this particular development concept is spatially at the heart of the downtown but as evidenced by the parking activity data collection program it is a critical parking customer service area.

Within the scope of this parking strategy study, we want to be able to inform this planning process with a framework that allows us to manage the parking services effectively. We want to be able to provide evidence that serves to find suitable alternatives to parking infrastructure that will still provide the expected level of service to our customers. Within this study's scope we want to indicate clear alternatives.

This memorandum serves to provide you with support documentation that emerged from the data collection and analysis tasks.

Firstly, we want to briefly present key parking activity characteristics that the Market Square parking area exhibited over the course of the project.

Secondly, we want to provide some insight into what might happen to the balance of parking demand and supply under various urban design options for the Market Square.

Thirdly, we want to determine order of magnitude costs to any of the potential solutions or remedies that emerge from the above task.

Current Role of Market Square Parking

The downtown parking strategy study has collected data that serves to identify parking demand characteristics, such as:

- **what** is attracting people to the downtown;
- **when** are they in need of parking spaces;

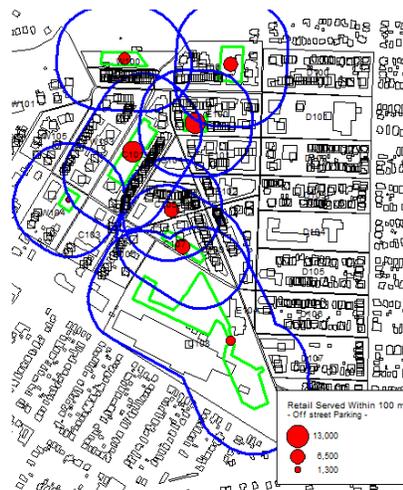
- an assessment of current parking operations;
- **how long** do they typically need parking; and,
- **What factors** are important to visitors to the downtown in **choosing where they park - how far are people willing to walk to and from destination and parking space.**

The downtown parking strategy study has also collected data that serves to measure how the current parking supply (public spaces) responds to that parking demand identified above. A number of metrics served to identify the customer level of service on each facility, block or collection of blocks:

- volume of users;
- durations of stay;
- accumulation of vehicles parked over the course of the day;
- peak hour(s) and average usage of our parking service;
- turnover of space (volume divided by number of spaces) to indicate level of intensity;
- the number of consecutive time periods when facility has reached 90 percent or more of its capacity; and
- a number of other metrics.

Based on the above set of data, we know the following:

1. The current off-street parking supply system is in excellent **position** to service the parking demands attracted by retail, office and restaurants for certain.
2. The figure extracted from the more detailed report shows that **retail** space for example within 100 meters¹ of each municipal off-street facility. Similar assessment was done for office, personal services, medical and restaurant uses in the downtown.
3. The size of the relative red dot serves to indicate visually the physical relationship between the potential parking demand generator (the land use) and the major parking infrastructure (the off street carpark). Important infrastructure to maintain it seems are:
 - a. Erie

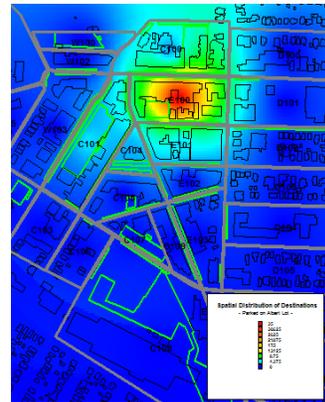


¹ The online survey results point to this as a walking threshold for shorter stay trips to the downtown. It represents not only the average walking distance from a parked space to a primary destination point as determined from the online surveys but also reflects approximately a 2 to 2:30 minute walk.

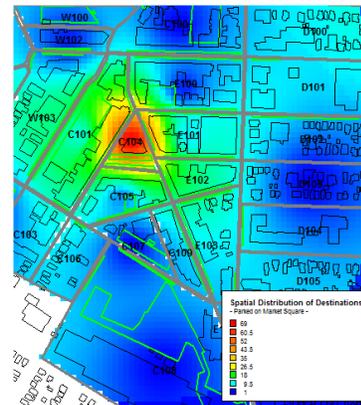
- b. Albert
 - c. Cobourg, and
 - d. Perhaps surprising the opportunity that the St Patrick Street lot has.
4. The online survey responses provided insight into the walking thresholds that currently are exhibited in the downtown. This walking pattern will be critical in the estimation of parking demand/parking supply response at the block level. The value of knowing this threshold in our parking investigation is to help to determine the market for on- and off-street parking space. In particular it will assist in determining what the impact might be of changes to the parking space infrastructure.

5. Fifty-five (55) percent of respondents parked their vehicles and had their primary destinations on the very same block.

6. For those who parked on a **municipal off street** parking facility, surveys indicated that **83 percent** were able to find a space within 5 minutes, while those who parked on an **on-street** parking space **63 percent** were able to do so. This is not unusual as on-street space is clearly a preferred choice and clearly much more restrictive in terms of inventory. As well, **73 percent** of those survey takers who chose to park on a **private customer** only parking facility were able to find space within 5 minutes!

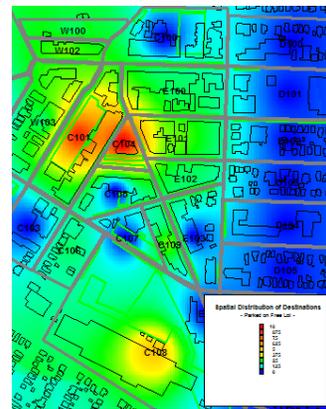
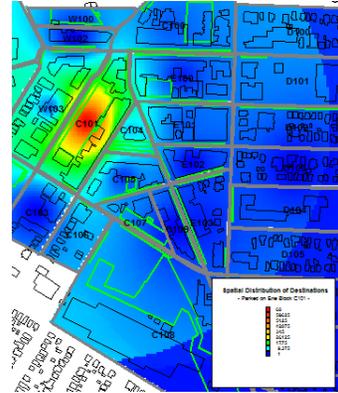


7. Often the perception that parking supply is deficient to the needs of customers is based on the **relative amount of time it takes to find a vacant parking space against the amount of time that they wish to stay in the downtown**. The study shows on average 68 percent of the survey takers who found space within 5 minutes those who had durations of 15 minutes or less a significant portion (83%) found that space within 15 minutes. Closer to the average duration of stay of customers in the downtown - just under two hours, the average 5 minutes or less service delivery was of the order **63 percent** with a significant 25 percent of 1:30 to 2:00 hrs duration needing 6 to 10 minutes to find a space. So we are still able to deliver the service within ten percent of the total time a customer wants to spend in the downtown.



8. Market Square (C104) and Erie lot's Block C101 represent 46 percent of the total online destinations. The facilities on these prime blocks serve two-thirds of the parking demand attracted by its uses. Be mindful that the Market Square block offers 68 on-street parking spaces while the Erie block provides 227 spaces including a 136 off-street parking facility. The 66% - 67% capture rate is an indicator of a high level of customer service.

9. The market capture area for those with destinations on the **Albert St** lot is shown. We have established that this block like many other primarily serve demand attracted by land use activities on the block itself, but note that there are indications that demand generated across Ontario St and on the south side of Albert is being serviced as well. Our field crew indicated that virtually on every observation period on the Wednesday of both the July and December surveys, there were vehicles circulating the Albert St municipal parking lot looking for space. Clearly this is a key parking infrastructure investment.
10. The shape of the service area for parking space within the Market Square block is very focussed on that block's demand generators but we can see the green hue beginning to show up in blocks east and south.
11. The parking spaces on the Market Square block served parking demands generated by 9 other blocks in the downtown showing its relative strength and importance to the delivery of service to demands attracted outside of its own block boundaries.
12. The third key block - Erie lot C101 - continues the theme of serving largely the demand generated on its own block location . In addition the market capture area is spreading to the block immediately west and east of it. The latter is of course where the City Hall Annex building is situated. Pertinent to current "buzz" regarding the Market Square re-development it was found through our online surveys that this block's parking space inventory serves **12** other block areas in the downtown.
13. The distribution of destinations of those who are parked on the "free" Cooper lot on our Block C108 located at the very bottom of the downtown serves to remind us of how parking location, level of service and price of that service interplay.



Shareable Parking Demand

Based on the above, the parking study went on to look at scenarios to determine what share of customers other parking facilities could service should a change to the parking supply on Market Square in particular occur. The key parking characteristic is this: what type of customers are we losing as a result of changes to the current inventory, and can another parking facility still be within reasonable walking distance to service that demand.

It is clear that Albert Street and Erie Street off-street facilities are within reasonable proximity to Market Square to warrant this kind of analysis. Albert Street - although within comparable walking distance was quickly determined to be currently operating at full optimal potential. It was thus taken out of the set of analysis. This left an analysis of the Erie lot potential.

The extract here serves to summarize comparative metrics for the 68 on-street spaces at Market Square and Erie Street's 136 off-street parking facility. The ranges of these critical metrics are provided over the course of four full day survey days (2 in July and 2 in December pre-Christmas).

Using the metrics above, the analysis of current walking distances from each site (Erie and the Market Square block), we concluded that there is an opportunity to currently accommodate displaced customers in either of the two development options. Those options are: Option 1: retains 32 spaces on the Market Square block thus displacing 36 spaces. Option 2: retains 48 spaces and loses 20 spaces. A third option that was analysed in the parking management study was one that would show no parking on the Market Square site at all and would consider the economics of expanding current parking facilities in longer term planning horizon.

Sample Metrics	Market Sq	Erie
Capacity - Spaces	68	136
Volume	189 to 292	164 to 381
Average Parked Cars	32 to 57	38 to 108
% Avg Occ	47% to 84%	28% to 80%
Peak Parked Cars	54 to 72	47 to 140
% Peak Occ	79% to 106%	34% to 103%
Turnover	3.5 to 4.4	2.7 to 3.5
Intensity AM	0 to 5	0
Intensity NOON	0 to 18	0 to 8
Intensity AFT	0 to 26	0 to 9
Avg Stay (Minutes)	105 to 120	133 to 168
VOL WITHIN LIMIT	163 to 261	129 to 307
VOL OUTSIDE LIMIT	13 to 45	35 to 104
Key Performance Index	54% to 98%	38% to 78%

Impact of Options 1 and 2

The Erie lot can accommodate the displacement of either 20 or 36 spaces. Just to further understand the conclusion please note that this is not a numerical calculation but the analysis looked at duration of stay, turnover and peak and average occupancy of space on both existing Market Square on-street facilities and on the Erie lot.

To be clear, each displaced parking stall on the Market Square on average means a displacement of 3.5 to 4.4 vehicles per space over the course of the day. In the design options above this translates to asking 126 to 158 customers who drive to that block to find parking on Erie (and elsewhere) under Option 1. Under Option 2, it means asking 70 to 88 customers who drive and park there now to find alternative.

As shown in the metrics table above, the current user profile of the Market Square on-street parking facilities indicates a relatively high portion of users to over-stay the three hour time restriction (VOL Outside Limit statistic shown in the table). The overstay element of the profile equates to a manageable 7 percent of total daily volume to a high of 15 percent. This is important to consider because it defines the nature of those customers that we might be displacing. Displacing higher turnover visitors to the downtown is somewhat more critical to the economic health of the downtown versus displacing longer stay (possibly business owners) customers who can seek out less conveniently located parking space in the downtown.

We would likely need to consider reducing monthly contract or longer stay parking on the Erie lot to ensure that we have excess capacity to accommodate this transferred usage.

Impact of Option 3 - Additional Parking Infrastructure in the Future

The parking strategy study had to deal with not only the possible redevelopment of Market Square but with the following issues, trends and opportunities in the short and longer term planning horizon:

- Other physical changes in the downtown as in the redevelopment of Cooper site.
- It spoke to the impact of free parking on the Cooper site and its role in the future.
- Effects of technology on the parking service industry itself. Technological changes have and will have an impact on mobility means, on the quantity and ultimately the need for parking. This parking strategy needs to acknowledge that changes in the way we move around town will impact the urban landscape. The technologies are:
 - Driverless vehicles
 - Shared economy or "dial-up" service
 - Continuation of internet based shopping for and purchase of services and products from the comforts of your home or office, and
 - Technology that finds a vacant parking space for you if you are driving your own vehicle

These changes directly impact the **quantity** of parking demand that we need to consider in our long term planning strategy and the **character** of the downtown that in turn begins to shape the type of parking markets that will emerge in time. Specifically consider:

- A resident population requires a set of services that satisfy the day to day living requirements (food and personal/medical services).
- A resident population grows into a community. This community becomes more engaged in its surroundings by protecting it from invasive traffic and demanding a set of urban design standards that encourages a more pedestrian environment.
- A resident population requires parking space on-site for their own vehicles and more likely to face a conflict with their visitors and people who are shopping, dining and engaging in commercial activities.
- A year-round entertainment and community focus point such as Market Square generates pedestrian traffic that needs to be woven safely into the existing urban transportation network.
- Combining the driverless vehicle with the "shared economy" technology, the on-demand service will not require a vehicle to rest in a parking space. Circulating around the block looking for a vacant parking space is not necessary as a driverless vehicle need only to pick up or drop off its passengers. Remember that a vehicle spends 96 percent of its time parked.

- Infrastructure changes are required so that this technology works - from clear network sensors, availability of charging stations to broadband wireless network that allows for communication between vehicles and that infrastructure.
- Most analysts believe that this technology will provide a safer and more efficient mobility service to us. It will also promise a cleaner environment as it is based on non-fossil fuel technology.
- Industry is well into the development of vehicles that can operate as such.
- Dialing up the service will be economical when compared to the outright purchase of your own vehicle.
- The technology will likely not reduce road congestion, however it will reduce the traffic that circulates looking for parking spaces (estimated to be of the order of 35 to 45 percent of the total volume)

This option then looks at the economics of consolidating parking space onto "choice" existing assets. Specifically, the study examined the economics of expanding the Erie Street lot. This lot was selected not only because of its proximity to core demand but also it has the physical geometry that can accommodate a structured parking asset.

To summarize its analysis:

1. The property can now accommodate its current supply plus a one storey deck.
2. Here is a summary of expected capital and operating expenses related to a scenario.
 - a. Capital cost at 14,000 per stall (20K after design, contingency costs added) with borrowing cost amortized over 25 and then a 35 year scenario
 - b. Maintenance costs (assuming fully automated operation) is annually set at \$200 per stall)
 - c. Capital reserve cost (set at 0.25% of original capital cost) to be set aside annually \$50 per stall)
 - d. Management costs reflect operation technology (impacts labour) to be set at \$130 per stall
 - e. Growth rate on operating costs (say 4% annually)
 - f. Demand factors: peak, turnover, day/night & monthly taken from parking activity study
 - g. Growth rate on demand (assumed to be grow using S-Curve - demand starts slow then accelerates rapidly and then levels when full demand is captured)
3. The pro-forma yielded a number of interesting results including:
 - a. If we wanted to recover capital cost within 15 years of its development we would need to begin to charge 1.50 to 2.00 per hour and sell monthly contracts for 75 to 85 dollars.