

CITY OF STRATFORD

ASSESSMENT OF STRUCTURED PARKING ON ERIE STREET LOT

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1. STUDY PURPOSE

The Downtown Development and Parking Committee has been reviewing the need for additional parking in downtown Stratford. City Council on June 27, 1988 approved a recommendation of the Committee to carry out a study of a parking structure on the Erie Street Lot. The study was to provide conceptual drawings and cost estimates for whatever structure was determined to be appropriate. Therefore, the analysis required identification of other items that affect the feasibility of a structure on this site. This extends to a review of need, and a review of any alternatives to such a project that might be available.

In presenting this scope of work, the report covers the following topics:

- overview of parking needs in the downtown
- concepts for a structure on Erie Street
- site construction constraints
- functional design and appearance of the structure
- cost estimates
- financing
- alternatives to an Erie Street structure
- recommendations

2. OVERVIEW OF PARKING NEEDS

There are two types of parking activity that constitute the main demand for downtown space, short duration customer/visitor parking and longer duration or "all day" employee parking. The two types have quite different characteristics, and the requirements are best provided for in different ways. The principle need of the former is convenience and therefore prime

location relative to destination, while the latter has to be low cost to be attractive. There are of course variations within each of these two categories. Some visitor parking can be all day and therefore does not have to be in a prime location, and some employee parking is by people coming and going through the day and therefore has to be reasonably convenient. Nevertheless, as a general principle the short duration supply should be centrally located and the longer duration parking can be on the fringe of the downtown.

The design hour for the visitor parking component is a Friday afternoon. Currently in this design period the parking supply in the Albert lot and upper Erie lot, in Market Square, and the on-street parking around the centre core zone, are all used at or close to capacity. The privately owned Woolco underground lot is also full in the peak hours. These spaces form a well defined concentration in the centre of downtown which represents the high parking demand business activity zone.

The recent 1986 parking study indicated that it would be desirable to have about 50 more spaces for visitor parking within this heavily used core area. However, there is no easy way of adding spaces in these highly convenient central facilities. The consequence of not adding spaces is that the visitor demand is met at a slightly lower level of service in terms of more circulation and searching for space by drivers, and a longer walk from parking spaces that are available on the edges of this primary demand zone. Part of the supply on the edge of the core is the south half of the Erie Street lot.

A desirable feature of short term parking that currently is not available in Stratford is attendant parking. This service would mean that parkers need not worry about elapsed time nor have to predetermine how long they will be staying as is the case now with meters.

Employee parking is an all day demand and for design purposes is more or less the same on all weekdays. Employees obviously prefer as convenient a parking location as is possible, but to save cost a longer walking distance

is a trade-off that is readily made. The City has initiated efforts to increase the amount of employee parking available in the downtown, selling permits for some municipal lots, leasing space at the Zion and St. John churches, and just recently leasing part of the Cooper-Bessemer property for public parking. As downtown development proceeds and there is more employment in the area, there will be an increase in employee parking demand.

It is reasonable for the City to attempt to provide space for employee parking, but such projects have to be at reasonable cost, should not preclude future options, and must fit into the downtown fabric. The consequence of a shortage of employee parking is that there is some additional use of short term parking space which aggravates any visitor parking deficiency, there is use of local streets around the downtown for all day parking, and there is a ferreting out and use of less than ideal parking locations including increased use of yards and lanes for parking. To some extent when there is limited employee parking there is also a reduction of travel to the downtown by car, either by car pooling or transit riding. These latter two effects are desirable in principle, but the shift that actually occurs is not large and does not relieve the other symptoms noted above.

The best test of the need for and the adequacy of employee parking facilities is the usage of existing facilities. The free church lots are well used. The Cooper-Bessemer initiative with \$1 per day parking is still quite new and the potential usage of this lot will not be indicated for several months since parking patterns only shift gradually.

The 1986 surveys indicated that 600 to 700 downtown employees have to find parking outside the core area each day. Some make private leasing arrangements and some seek out free on-street space. The net demand that the City should use as a guide for its efforts to provide employee parking is difficult to quantify because there is a varying relationship among usage and cost and location. There are several hundred potential parkers who would change their current parking habits if the price and location of a

given lot was attractive, but each alternative is unique in this assessment.

3. CONCEPTS FOR ERIE STREET LOT

The north end of the Erie Street lot is a suitable location for additional visitor parking that would serve the core zone as defined earlier. The south end is less convenient, but is one of the secondary locations that meets any central short term deficiency that develops. The lot is also very suitable for employee parking in terms of locational convenience, but such use should not be allowed to preclude the more important visitor parking supply.

The near term parking requirements do not justify a multi-level garage at this time. A parking structure in Stratford will only be justified if there is a pressing need for a significant amount of additional visitor parking. While there is always some proportion of garage use that is employee parking, the initial rationale to build a structure has to be based on serving visitor rather than employee parking. A structure for a large amount of employee parking is not usually practical as a municipal initiative. Therefore if a garage on the Erie Street lot is ever built, without it being part of a comprehensive redevelopment of the block, it should be at the north end of the site. A garage at the south end will not serve the prime downtown visitor demand quite as well.

Therefore if there was to be a structure built on the Erie Street lot at this time, a single level is the most that should be considered. The requirement for 50 additional spaces for visitor use is not a critical shortage, part of the alternative supply of spaces to meet this demand being on the south half of the same Erie Street lot. The difference in level of service that visitor spaces in a structure on the north half would provide does not warrant the cost of a garage or deck for this purpose.

It was noted above that use of the Erie lot for employee parking should not preclude its availability for visitor parking. The concept of a deck in order to add employee parking is a form of structured parking that is worth evaluating at this time. Whenever a deck concept is suggested it is prudent to consider the possibility of eventual expansion with additional floors, but in this case there is little likelihood of a multi-level garage being justified on the south end of the lot.

4. CONSTRUCTION CONSTRAINTS

The dimensions of the lot are sufficient to accommodate a reasonably efficient parking structure floorplate. However, there is the need to maintain service access to the adjacent property that fronts on Wellington and backs onto the Erie lot. Truck deliveries and garbage pick-up are made from the parking lot side of these existing buildings. Therefore it is necessary to maintain truck access to the rear of the properties on the east side of the lot. This means leaving a sufficiently wide lane adjacent to the buildings, and sufficient height clearance for trucks on the access to the service lane.

There are some utility lines and vaults on the parking lot that have to be either protected in their present location or relocated to allow construction of a structure. There is no physical limitation with the utilities, but this is a cost impact particularly if the vaults have to be relocated.

The site slopes from north to south, especially on the south half. A structure will have to adapt this condition into the layout and operation, but this is not a major problem.

The existing parking lot has been very attractively landscaped within the lot as well as along the Erie Street frontage, and there has also been a significant upgrading of the building faces alongside the lot. This standard should be maintained in any addition to the lot.

5. FUNCTIONAL LAYOUT

As discussed earlier, a single level is the most parking that can be justified on the lot at this time. The most efficient layout and design for a single level deck on the south half is shown on Figure 1.

The plan would create a deck over the south portion, starting at the break in elevation that now exists on the site. Parking is maintained over the entire lower level, but some excavation is required to keep the same number of spaces. The upper level essentially becomes a continuation of the surface parking level on the north portion of the lot, but sloping up rather than down as the ground level does now. The abrupt change in elevation is eliminated, so the raised deck would probably be more effective as a supply for the downtown core zone.

The deck would be at a higher grade than is necessary just to permit parking on the lower level since sufficient clearance for trucks has to be provided through the garage as this would be the access route to the service lane at the rear of the Wellington properties.

The layout shown on Figure 1 adds 100 more spaces to the Erie Street lot. Since there will have to be a substantial charge for this parking, 100 spaces is probably more than adequate as the number of spaces that would be used for employee parking.

6. APPEARANCE

The physical appearance of the structure on the site is an important issue since it is visible from one of the main arterials in Stratford, and also given that the existing lot has been treated very attractively. Figure 2 is an elevation showing the relationship of the deck to the street line. The architectural treatment of the panels can be of various kinds, but this can be investigated in more detail if such a deck was to be built.

The lower parking area will be open on three sides, to Erie Street and to the Wellington side and adjacent to the Stratford Hotel at the south end. The north end will be closed as this is where the deck comes up over the lower level. The upper deck of course is open on all sides. Parapet walls would be placed all around the upper level, and would be optional on the lower level.

The layout used for costing has interior columns within the parking area as a means of reducing cost. A clear span design has a neater appearance but would have about a 15% cost premium.

7. COST ESTIMATE

The deck shown in Figure 1 has been costed in sufficient detail to have a reasonable idea of the total cost of such a project. A cast-in-place design was used for this exercise to get typical costs. A precast design could be chosen if desired, with the total costs likely to be in the same range. Figures 3, 4 and 5 illustrate the preliminary design used for the cost estimates.

The costs by major component are as follows.

1.	Excavation and backfill	3500 cu. yd.	@ \$12.	\$ 42 000.
2.	Concrete supply	1400 cu. yd.	@ 100.	140 000.
3.	Form, place, finish	39000 sq. ft.	@ 9.	351 000.
4.	Reinforcing steel	300 tons	@ 950.	83 000.
5.	Precast concrete elements			50 000.
6.	Floordrains			13 000.
7.	Lighting (2 levels)			50 000.
8.	Miscellaneous metals			8 000.
9.	Protective coating "CONSEAL"	31000 sq. ft.	@ 2.50	80 000.
10.	Paving and utility relocation			250 000.
11.	Other items			100 000.
12.	Fees and contingencies (25%)			<u>290 000.</u>
		TOTAL		\$ 1 457 000.

Extraordinary amounts have not been shown for any utility relocation or for special landscaping. It has been concluded that with the proposed design the existing utilities will cause only minor conflict, and the existing landscaping along Erie Street can be maintained for the most part.

The total cost of \$1,457,000 is very high when related to the net addition of 100 spaces. This is a result of the need to virtually rebuild the existing 84 spaces on the lower part of the lot. The per space cost for the entire 188 space project is \$7,750, but using only the 100 spaces added the incremental per space cost is \$14,570.

8. FINANCING

The revenue side of the parking operation also has to be looked at to get the full financial impact picture. The 100 additional spaces would not be heavily used as metred space for visitor parking since the location is not in the prime demand area. Therefore the highest revenue potential is most likely related to employee parking. A monthly rate of \$40 is estimated to be the optimum level that could be charged for this parking to maximize revenue. An annual revenue of about \$40,000 is the most that would be generated by the spaces added by this project.

The annual operating costs for the downtown parking facilities would increase, although the 100 added spaces as an increment on the existing operation is not large. The biggest cost impact would be from the financing charges. If the entire cost of the structure is debentured, over a twenty year period the annual carrying charges will be about \$175,000. It is obvious that the above noted \$40,000 annual revenue is not even close to being able to carry the cost of the parking structure. A significant payment will have to come from another source to pay for a structure on this site.

9. ALTERNATIVES TO ERIE STREET STRUCTURE

Other possibilities for parking in the downtown should be looked at, given the high cost of the structured parking option.

For employee parking, the Cooper-Bessemer site is a good alternative. The major concern is that this is only a temporary solution in that the new owner has plans to develop the site. Nevertheless, such interim use of fringe area property is a typical way in which employee parking is provided in many cities. The supply varies over time, but some property is usually in a state of transition and can be used for parking. The \$1 per day charge for this parking area is modest, and usage should increase. The eventual level of usage of this lot will be a good indicator of the demand for municipally organized employee parking.

The purchase of land around the downtown in locations that are equivalent to the Cooper-Bessemer site is the alternative to relying on the leasing of transitional sites. Initial costs always seem high, but many cities find that they eventually can resell the land which recovers the investment and also enables the City to assist with land assembly that permits a useful downtown area project to proceed.

It is possible to construct some spaces along Cobourg Street by extending the street grade and creating a lot similar to the York Street facility. This will impact on the green space that now exists, but the work could be done in an attractive manner. The principal choice in such an initiative is the visual impact versus the provision of more parking. This would not be an inexpensive process, but probably less costly than the structured parking cost estimated for Erie Street.

It is important that the existing on-street and other public parking spaces be managed in a way that best achieves the parking program objectives. Part of this management is to have a rate structure that ensures that the prime spaces are used for short term convenience parking serving the customer/visitor demand. Therefore it is recommended that the meter rates in

the high demand core area be maintained at a high enough level that any long term meter feeding is discouraged. This will maximize the availability of the prime spaces for short term parking.

For the short duration visitor parking component that was discussed earlier, it would be useful to place about 30 meters on the Ontario Street lot adjacent to Ontario Street. The remainder of the lot could remain as employee permit parking. The purpose of this change is to relieve the on-street parking demand on Ontario Street, which in turn should have some benefit in relieving the high demand on the Albert Street lot. This is a ripple effect that is the next best alternative to actually being able to add spaces right in the Albert lot.

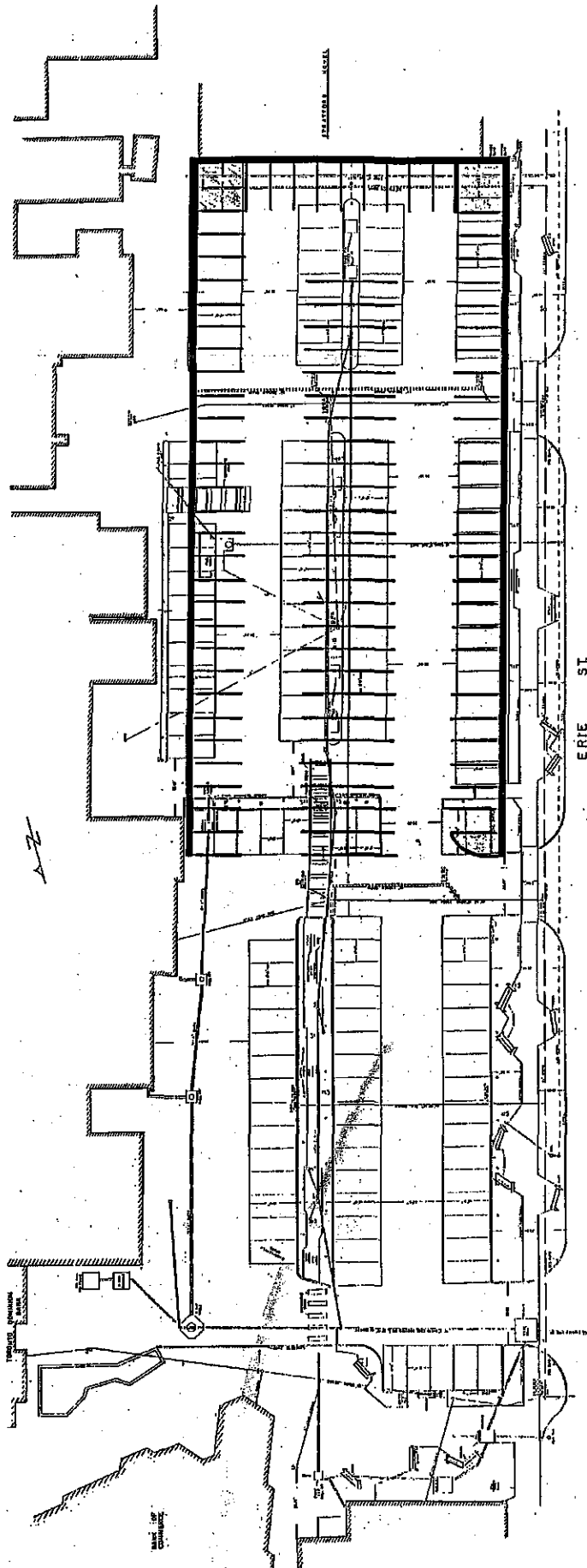
10. CONCLUSIONS AND RECOMMENDATIONS

The addition of more parking on the Erie Street lot is a desirable objective. However, the cost is not justified by the likely benefit for visitor parking. The location for additional employee parking is very good, but the high cost to construct a deck over part of the lot cannot be carried by the rates that could be charged for all day permits.

The leasing of part of the Cooper-Bessemer site for public parking should be continued. Its usage will be an indicator of the need for additional employee all day parking.

The cost of acquiring other property around the edge of the downtown should be investigated and compared with the cost for the Erie lot as estimated in this study and the cost of leasing space on the Cooper-Bessemer or other site.

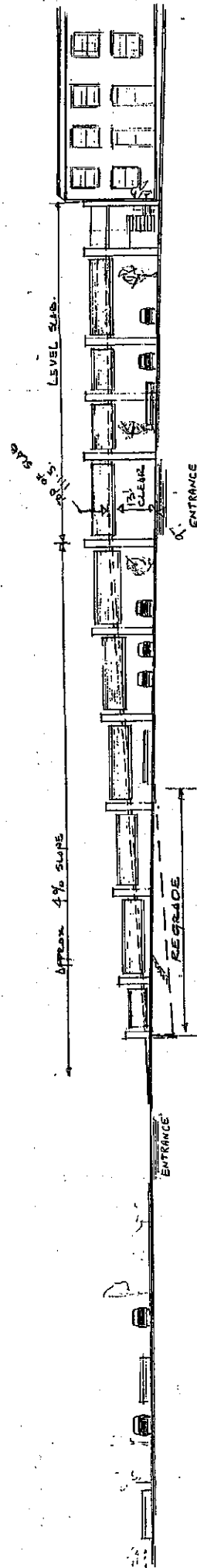
If additional fringe area spaces are to be provided, other construction opportunities should be investigated before the Erie Street option is selected.



LOCATION AND LAYOUT FOR
DECK ON ERIE STREET LOT

SCALE: 1" = 40'-0"

FIGURE 1



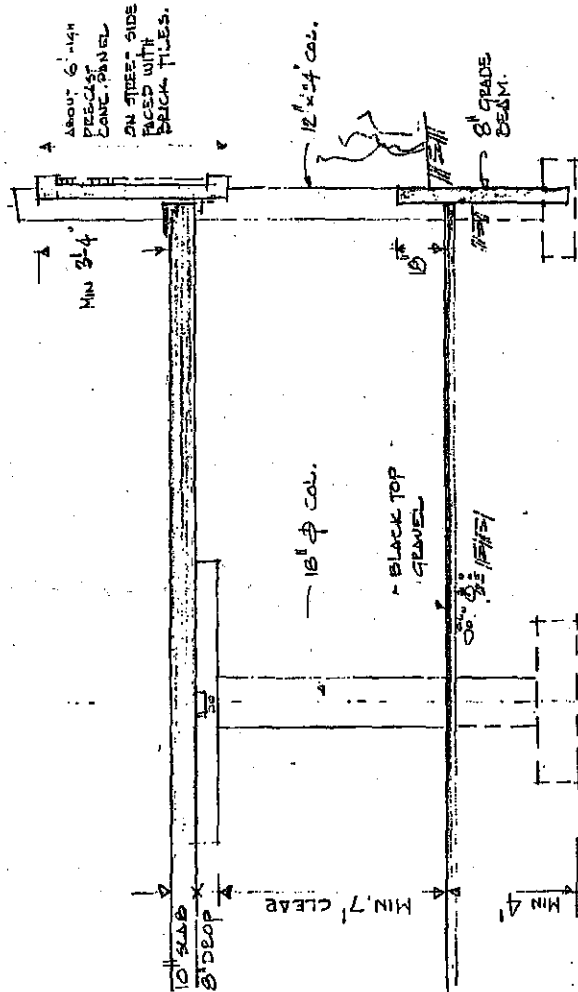
ERIE STREET PARKING DECK
WEST ELEVATION

N.T.S.

FIGURE 2

GENERAL NOTES:

1. SLAB SIZE ASSUMED TO BE 4'-0" X 18'-0" EXCEPT BELONG DECK BETWEEN COLUMNS 27'-0" APART, 8'-6" X 18'-0"
2. CONCRETE
 - CONCRETE SHALL MEET REQUIREMENTS FOR CLASS A EXPOSURE AS PER CSA STANDARD CAN 3-A23.1.
 - SHALL NOT CONTAIN CALCIUM CHLORIDE
 - SHALL HAVE A MINIMUM CONTENT OF CEMENTING MATERIAL OF 320 KG/M³
 - SHALL HAVE A MIN. 28 DAY STRENGTH OF 30 MPA
 - MIN. COVER FOR TOP REINFORCING - 40 MM
 - MIN. COVER FOR BOT REINFORCING - 25 MM
3. REINFORCING
 - GRADE 400
4. SLOPES AND DRAINAGE
 - THE DRAINING SURFACE SHALL HAVE SUFFICIENT SLOPE AFTER LONG TERM DEFLECTION TO PROVIDE POSITIVE DRAINAGE. MINIMUM SLOPE 2 %
 - DRAIN LOCATIONS: NON-RAMPED FLOORS; ONE DRAIN PER 400 M² OF FLOOR AREA AT LOW POINT. RAMP FLOORS; AT BOTTOM OF EACH RAMP
 - TOP OF DRAINS TO BE SET LOW TO PREVENT PONDING AT DRAINS.
5. SERVICES
 - METAL ELECTRICAL CONDUITS, JUNCTION AND FUTURE BOXES SHALL NOT BE EMBEDDED WITHIN THE CONCRETE SLAB.
 - EACH FLOOR SHALL BE PROVIDED WITH WATER SUPPLY FOR WASHDOWN OF PARKING STRUCTURE.
 - DRAINS AND PIPES EMBEDDED IN CONCRETE SHALL BE NON-METALLIC OR LOW COPPER ALUMINUM ALLOY, COATED TO PREVENT GALVANIC CORROSION.
6. CORROSION PROTECTION
 - SUSPENDED SLAB SHALL BE PROTECTED BY CAKEAL 300" BY CONCRETE SEALANTS.



TYPICAL SECTION
N.T.S.

TYPICAL SECTION AND GENERAL NOTES