

Our File/N/Réf.  
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DATE: 11 May 1999

TO/DEST: Co-ordinator, Transit Services Committee

FROM/EXP: General Manager

SUBJECT/OBJET: **SERVICE DESIGN GUIDELINES AND  
1999 ANNUAL PERFORMANCE REVIEW**

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### **DEPARTMENTAL RECOMMENDATIONS**

**That the Transit Services Committee recommend to the Commission that:**

- 1) the Service Design Guidelines be amended to change the minimum cost-recovery targets on local routes to 25% in off-peak hours and 35% in core hours;**
- 2) these guidelines be applied to the 1999 service, as outlined in this report and summarized in Appendix A;**
- 3) for future years staff be empowered to apply the approved Guidelines as part of the regular scheduling process.**

### **BACKGROUND**

The current Service Design Guidelines were approved by the Transit Commission in April 1997 and are summarized in Table 1. Briefly, the guidelines are used to ensure that the resources available for on-street service are distributed effectively. They balance basic accessibility with ridership potential, and were developed with full public consultation.

The OC Transpo Comprehensive Review final report "The Way Ahead: Becoming the Best of the Best", made specific recommendations for enhancing and strengthening the current Service Design Guidelines.

This report discusses the current guidelines, the changes suggested in the Comprehensive Review, and recommends amendments. These incorporate the main principle of the guidelines from the Comprehensive Review to focus resources more sharply in areas where they will be well used.

A complete route performance review is carried out each year using the current Service Design Guidelines. The review identifies those routes which are not meeting the minimum ridership targets for some time period(s) and prescribes ways to improve performance, usually by reducing frequency or eliminating service. It also identifies top performing routes as candidates for increased frequency.

Such a review has been carried out this year and route performance has been measured against the recommended Service Design Guidelines. Implementation of the resulting service reductions and additions is recommended for September 1999.

### THE CURRENT GUIDELINES

Service Design Guidelines are used to allocate resources in a manner that balances the basic mobility needs of the community with the objective of maximizing ridership. The current guidelines were developed on the principle that a Base Route network should be available during the full service day to meet basic mobility objectives, and that this would be supplemented by other services based on ridership. The guidelines are summarized in Table 1.

The Base Route network consists of Transitway service as well as Base Routes, although service hours for Transitway routes are longer to allow customers to get at least as far as the outlying Transitway stations in the early hours of the morning. One of the attractions of the current Service Design Guidelines is that the Base Routes are not subjected to any minimum cost-recovery targets. This provides assurance to customers that a minimum amount of basic service will always be provided.

The other all-day routes are categorized as Crosstown or Local and minimum cost-recovery targets are applied to these based on experience of performance that existed in 1996/97 and public consultation at that time.

A different approach is taken to Peak Period services, where the objective is for the average number of passengers at the busiest point on the route in the busiest 60 minutes not to exceed 45, which is the number of seats on a standard bus. This certainly does not guarantee a seat for everyone since, even within the peak sixty minutes, peaks of demand occur. However, it does provide an even-handed and reasonable method for scheduling frequencies on these commuter services.

The main shortcomings of the current Guidelines are the fact that the Base network is not as straight, fast and simple as it should be to provide for residents' basic mobility needs, and the minimum cost-recovery targets are very low (e.g. 15% for Local Routes outside core hours).

### RECOMMENDED GUIDELINES

The rationale for the existing Service Design Guidelines was supported by the Comprehensive Review. However, changes were proposed to improve overall productivity. The recommended Guidelines, summarized in Table 2, include the key changes suggested by the Comprehensive Review, as discussed below.

#### Base Routes

The Comprehensive Review supported the principle of providing basic accessibility through the provision of a Base service network which includes Base Routes and Transitway Routes. The Base service network would provide region-wide coverage that serves eighty percent of the population within an 800 metre walk and would operate seven days a week throughout the service day in the major travel corridors, primarily on the main arterial roads and Transitways. Base service would form a region-wide grid network to ensure that a basic level of mobility is provided to residents when other routes are not operating. To operate effectively as a grid network with convenient transfer connections, the Base Routes would provide direct, frequent and reliable service with even headways and consistent spans of service.

The five year plan for the Comprehensive Review for route structure, which was reviewed with the public last fall, was developed using these principles. Major steps towards implementation are proposed in the Transplan 99 process and, with the Commission's approval, could be in place by September 1999.

The Comprehensive Review concluded that the current hours of service provided by the Base and Transitway services were appropriate and that these routes should continue to operate at a frequency of every thirty minutes or better. The report went one step further and suggested that service on the Base Routes should be operated at least every fifteen minutes during peak periods and core shopping hours. However, it is recommended that the current thirty minute or better guideline be retained since, in many cases, the Base Routes already operate at this level of service, or better, but for some of the Base Routes, especially those that operate exclusively outside the Greenbelt or in the more suburban areas inside the Greenbelt, the fifteen minute service guideline would be difficult to justify.

The Comprehensive Review also supported the philosophy of not subjecting Base Routes to any minimum cost-recovery targets but suggested cost-recovery values to signal the need for a review of the route structure in an area. The Comprehensive Review proposed cost-recovery values for Base Routes of 50% during core hours and 25% the rest of the time.

#### Other All-day Routes (Local Routes)

The biggest change proposed by the Comprehensive Review and included in the recommended Guidelines is with the minimum cost-recovery targets for all-day routes which are not part of the Base network. Today, Crosstown Routes must recover 45% of costs during core hours and 25% the rest of the time while Local Routes must recover 25% during core hours and 15% the rest of the time. The Comprehensive Review proposed a new combined guideline of 35% during core hours and 25% during the rest of the service day. This change is recommended and would have the effect of enabling resources to be focussed on services with greater ridership and assist OC Transpo in meeting the challenging ridership and productivity increases called for in the Comprehensive Review.

For Local Routes, the Comprehensive Review suggested a minimum of thirty minute service during core hours. As with the Base Routes, most Local services already operate at this higher frequency because customer usage supports it. However, there are some areas and time periods where this level of service is excessive and failure to meet the revenue target would result in elimination of service altogether. It is recommended that the sixty minute headway guideline be the only one for Local Routes.

### Peak Period Only Service

There are two components to the current Service Design Guidelines for Peak Period Routes. The first is a passenger capacity standard for Peak Period Routes destined to downtown, which is currently targetted to be an average of 45 passengers per bus at the busiest point on the route, in the busiest hour. The Comprehensive Review suggests that this be changed so that the average number of passengers at the busiest point on the route in the peak hour is equal to or exceeds 45. This does not seem reasonable, especially with the arrival of the low-floor buses with fewer seats. The existing guideline does not guarantee a seat for all passengers but does balance comfort and cost fairly across the region.

The Comprehensive Review also proposed that the downtown route guideline be applied to Peak Period Routes outside downtown. However, the current guidelines work well, allowing for early expansion of the counter-peak services into growing business park areas because they are evaluated in terms of a revenue:cost target. The cost of providing counter-peak service is relatively low, which means that trips can run with considerably lower ridership than would be required for peak direction services. It is recommended that this approach be retained.

### 1999 ANNUAL PERFORMANCE REVIEW

The 1999 performance review has been carried out based on the recommended Service Design Guidelines (Table 2). However, because of the major route changes planned inside the Greenbelt for 1999 and outside the Greenbelt for 2000, the new Guidelines have only been applied to those routes which are not affected by the changes. Outside the Greenbelt, the current Service Design Guidelines were applied.

The Transplan 99 route structure changes will, of themselves, improve performance on some routes. For example, the elimination of Routes 11 and 19 should improve the productivity of Routes 1, 2, 7, 14 and 18.

It is recommended that the service reductions and additions detailed in Appendix A be implemented in September 1999. The service reductions on 15 routes would result in an annualized saving of 7,337 hours which would be reinvested into routes which warrant more frequent service. The more significant reductions are on Routes 6, 183 and 189. On the other hand, service is being increased on weekends on Routes 95, 85 and 2 where ridership is growing.

Route 183 provides two daily trips to and from the Corel Centre. One trip in each of the peaks. This service would be discontinued. The ridership is very poor with fares recovering only 17% in the a.m. and 5% in the p.m. compared, in both cases, with a target of 25%.

Route 189 was originally proposed for complete cancellation through the Transplan 99 process. There are however several trips in both peak periods which do exceed the minimum target of 25%. Two trips will remain in the a.m. peak while three will continue to operate in the p.m. peak.

Route 6, which operates at very low productivity, would be affected by the tougher minimum ridership targets. The new Guideline for Local Routes is 35% in the core hours and 25% during the rest of the day. Based on these minimum targets, it is recommended that Route 6 be reduced to hourly service on weekdays during the midday, Saturdays and Sundays.

### RIDERSHIP IMPLICATIONS

Some of those affected by the proposed reductions who do not have convenient alternative service available to them may find other means of transportation. Others would be able to walk to Base Routes. It is proposed to reinvest the savings in routes on which ridership warrants higher service frequency. Any losses in ridership due to the reductions proposed will be more than offset by ridership gains where the reinvested service has been introduced.

### FINANCIAL IMPLICATIONS

There are no financial implications because all savings are being reinvested into the service.

### CONSULTATION AND INFORMATION

It is important that where trips are to be cancelled, the public must be clearly informed in advance of the service change. It is proposed to provide information to customers on all of the specific trips to be eliminated well ahead of the service change. This approach has worked well in the past.

*Approved by*  
*M.J.E Sheflin, P.Eng.*

**TABLE 1  
Approved Service Design Guidelines**

<p><b>Transitway Service</b></p> <p>Routes 95, 96 and 97 which today service the Transitway</p>	<p>It is recommended that minimum guaranteed service levels operate on Transitway routes 95 and 96/97:</p> <p>Weekdays:</p> <table border="0"> <tr> <td>15 minutes</td> <td>6:00 a.m. to midnight</td> </tr> <tr> <td>30 minutes</td> <td>midnight to 2:00 a.m.</td> </tr> <tr> <td></td> <td>5:00 a.m. to 6:00 a.m.</td> </tr> </table> <p>Saturdays:</p> <table border="0"> <tr> <td>15 minutes</td> <td>6:00 a.m. to midnight</td> </tr> <tr> <td>30 minutes</td> <td>midnight to 2:00 a.m.</td> </tr> <tr> <td></td> <td>5:00 a.m. to 6:00 a.m.</td> </tr> </table> <p>Sundays:</p> <table border="0"> <tr> <td>15 minutes</td> <td>7:00 a.m. to 11:00 p.m.</td> </tr> <tr> <td>30 minutes</td> <td>11:00 p.m. to 2:00 a.m.</td> </tr> <tr> <td></td> <td>6:00 a.m. to 7:00 a.m.</td> </tr> </table>	15 minutes	6:00 a.m. to midnight	30 minutes	midnight to 2:00 a.m.		5:00 a.m. to 6:00 a.m.	15 minutes	6:00 a.m. to midnight	30 minutes	midnight to 2:00 a.m.		5:00 a.m. to 6:00 a.m.	15 minutes	7:00 a.m. to 11:00 p.m.	30 minutes	11:00 p.m. to 2:00 a.m.		6:00 a.m. to 7:00 a.m.
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<p><b>Base Routes</b></p> <p>Cross-regional routes operating largely on arterial roads such as routes 2 and 118.</p>	<p>It is recommended that a Base Route Network be established that would provide guaranteed minimum service levels:</p> <table border="0"> <tr> <td>X</td> <td>6:30 a.m. to midnight</td> <td>Weekdays</td> </tr> <tr> <td>X</td> <td>7:00 a.m. to midnight</td> <td>Saturdays</td> </tr> <tr> <td>X</td> <td>7:30 a.m. to 11:00 p.m.</td> <td>Sundays</td> </tr> </table> <p>On most Base routes a minimum 30 minute service headway would be operated, however, on Sundays, some routes may operate hourly outside of the core hours of 11:00 a.m. to 5:00 p.m.</p> <p>Service would be provided on this network outside of these hours if the minimum cost recovery target of 25% were exceeded.</p>	X	6:30 a.m. to midnight	Weekdays	X	7:00 a.m. to midnight	Saturdays	X	7:30 a.m. to 11:00 p.m.	Sundays									
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<p><b>Crosstown and Local Routes</b></p> <p>Other all-day routes which supplement Transitway and Base routes e.g. 4 and 156</p>	<p>It is recommended that Crosstown and Local routes operate at a minimum headway of 60 minutes in time periods when the following minimum cost recovery targets are met:</p> <table border="0"> <tr> <td>Crosstown routes</td> <td>45% in core hours</td> </tr> <tr> <td></td> <td>25% in off-peak periods</td> </tr> <tr> <td>Local feeder routes</td> <td>25% in core hours</td> </tr> <tr> <td></td> <td>15% in off-peak periods</td> </tr> </table> <p>These targets represent the percentage of fully allocated operating costs covered by fares. The core hours are:</p> <table border="0"> <tr> <td>6:30 a.m. to 6:00 p.m.</td> <td>on Weekdays;</td> </tr> <tr> <td>10:00 a.m. to 6:00 p.m.</td> <td>on Saturdays; and</td> </tr> <tr> <td>11:00 a.m. to 5:00 p.m.</td> <td>on Sundays.</td> </tr> </table>	Crosstown routes	45% in core hours		25% in off-peak periods	Local feeder routes	25% in core hours		15% in off-peak periods	6:30 a.m. to 6:00 p.m.	on Weekdays;	10:00 a.m. to 6:00 p.m.	on Saturdays; and	11:00 a.m. to 5:00 p.m.	on Sundays.				
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<p><b>Peak Period Service</b></p> <p>Green express and red peak period only routes e.g. 32, 29 and 192.</p>	<p>It is recommended that for routes destined to downtown Ottawa:</p> <table border="0"> <tr> <td>X</td> <td>service be scheduled so that the average number of passengers at the busiest point on the route, in the busiest 60 minutes, not exceed 45 (based on a standard bus).</td> </tr> </table> <p>It is recommended for Peak-only routes outside downtown Ottawa that they must achieve at least a 25% cost recovery.</p>	X	service be scheduled so that the average number of passengers at the busiest point on the route, in the busiest 60 minutes, not exceed 45 (based on a standard bus).																
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**TABLE 2**  
**Recommended Service Design Guidelines**

<p><b>Base Routes</b></p> <p>Routes 95/97 which service the Transitway</p> <p>Cross-regional routes operating largely on arterial roads such as routes 2 and 118.</p>	<p>It is recommended that a Base Route Network consisting of Transitway routes and other cross-regional routes be established that would provide guaranteed minimum service levels:</p> <p><u>Transitway Service:</u></p> <p>Weekdays: 15 minutes 6:00 a.m. to midnight 30 minutes midnight to 2:00 a.m. 5:00 a.m. to 6:00 a.m.</p> <p>Saturdays: 15 minutes 6:00 a.m. to midnight 30 minutes midnight to 2:00 a.m. 5:00 a.m. to 6:00 a.m.</p> <p>Sundays: 15 minutes 7:00 a.m. to 11:00 p.m. 30 minutes 11:00 p.m. to 2:00 a.m. 6:00 a.m. to 7:00 a.m.</p> <p><u>Other Base Routes:</u></p> <p>Weekdays: 6:30 a.m. to midnight Saturdays: 7:00 a.m. to midnight Sundays: 7:30 a.m. to 11:00 p.m.</p> <p>On most Base routes a minimum 30 minute service headway would be operated, however, on Sundays, some routes may operate hourly outside of the core hours of 11:00 a.m. to 5:00 p.m.</p> <p>Service would be provided on this network outside of these hours if the minimum cost recovery target of 25% were exceeded.</p>
<p><b>Local Routes</b></p> <p>Other all-day routes which supplement Transitway and other Base routes e.g. 4 and 156</p>	<p>It is recommended that Local routes operate at a minimum headway of 60 minutes in time periods when the following minimum cost recovery targets are met:</p> <p>35% in core hours 25% in off-peak periods</p> <p>These targets represent the percentage of fully allocated operating costs covered by fares. The ?core? hours are:</p> <p>6:30 a.m. to 6:00 p.m. on Weekdays; 10:00 a.m. to 6:00 p.m. on Saturdays; and 11:00 a.m. to 5:00 p.m. on Sundays.</p>
<p><b>Peak Period Service</b></p> <p>Green express and red peak period only routes e.g. 32, 40 and 192.</p>	<p>It is recommended that for routes destined to downtown Ottawa:</p> <p>X service be scheduled so that the average number of passengers at the busiest point on the route, in the busiest 60 minutes, not exceed 45 (based on a standard bus).</p> <p>It is recommended for Peak-only routes outside downtown Ottawa that they must achieve at least a 25% cost recovery.</p>

<b>Savings</b>	<b>Recommended</b>		
	<b>Hours/day</b>	<b>Days/year</b>	<b>Total</b>
Weekday	22.4	252	5,645
Saturday	22.3	53	1,182
Sunday	8.5	60	510
<b>Annual Total</b>	-	365	7,337

<b>Expenditures</b>	<b>Recommended</b>		
	<b>Hours/day</b>	<b>Days/year</b>	<b>Total</b>
Weekday	-	252	-
Saturday	120.0	53	6,360
Sunday	24.0	60	1,440
<b>Annual Total</b>	-	365	7,800

<b>Net Cost/Savings</b>	<b>Recommended - Annual Hours</b>
Savings	7,337
Expenditures	7,800
<b>Net</b>	(463)



Route	Class	Early Morning Service Removed	Evening Service Removed	Frequency Reductions	Service Added	Service Canceled	Committee Amendments
4	Crosstown		23:55 NB (12/25)				
4	Crosstown		0:07 SB (15/25)				
5	Crosstown		23:50 EB (12/25)				
6	Local	6:17 EB (16/25)		Reduce to hourly service in midday (28/35)			
6	Local		20:58 EB (17/25)				
16	Crosstown		23:38 WB (20/25)				
18	Crosstown		23:53 EB (17/25)				
86	Crosstown		0:05 EB (16/25)				
86	Crosstown		0:59 WB (18/25)				
144	Base		0:25 NB (8/25)				
162	Local	6:07 NB (6/15)					
162	Local	6:31 SB (10/15)					
166	Local		23:52 NB (10/15)				
166	Local		23:32 SB (7/15)				
183	PeakNonDT					8:37 EB (17/25)	
183	PeakNonDT					16:56 EB (5/25)	
189	PeakNonDT	7:11 SB (18/25)					
189	PeakNonDT		15:02 NB (9/25)				
189	PeakNonDT		17:02 NB (13/25)				
189	PeakNonDT		17:32 NB (17/25)				
(xx/xx) = (actual r/c % / target r/c %)							

Route	Class	Early Morning Service Removed	Evening Service Removed	Frequency Reductions	Service Added	Service Canceled	Committee Amendments
2	Base				Increase from 20 min. to 15 min. 18:30 to 21:30 (102/84)		
6	Local	8:12 EB (10/25)		Reduce to hourly service (28/35)			
6	Local		21:12 EB (23/25)				
6	Local		21:00 WB (21/25)				
14	Base				Increase from 20 min. to 15 min. 12:30 to 18:30 (107/84)		
18	Crosstown		23:18 EB (18/25)				
18	Crosstown		23:35 WB (10/25)				
85	Base				Increase from 15 min. to 10 min. 12:30 to 18:30 (142/98)		
95	Transitway				Increase from 7/8 min. to 6 min. 12:30 to 18:30 (185/126)		
118	Base				Increase from 20 min. to 15 min. 12:30 to 18:30 (112/84)		
125	Base		0:08 WB (8/25)				
175	Local		18:22 WB (6/25)				
(xx/xx) = (actual r/c % / target r/c %)							

Route	Class	Early Morning Service Removed	Evening Service Removed	Frequency Reductions	Service Added	Service Canceled	Committee Amendments
6	Local			Reduce to hourly service (25/35)			
95	Transitway				Increase from 10 min. to 7/8 min. 12:30 to 18:30 (146/112)		
156	Local		22:40 SB (8/25)				
173	Base		22:44 NB (17/25)				
173	Base		23:10 SB (16/25)				
(xx/xx) = (actual r/c % / target r/c %)							

Route	Class	Day Type	Service Increase Proposed	Actual R/C Ratio (%)	Target R/C Ratio (%)	Exceeds Target R/C Ratio (%)	Est. Cost per year (hrs)	Comments
95	Transitway	Saturday	Increase from 7/8 min. to 6 min. 12:30 to 18:30	185	126	59	954	Recommended
85	Base	Saturday	Increase from 15 min. to 10 min. 12:30 to 18:30	142	98	44	2544	Recommended
95	Transitway	Sunday	Increase from 10 min. to 7/8 min. 12:30 to 18:30	146	112	34	1440	Recommended
118	Base	Saturday	Increase from 20 min. to 15 min. 12:30 to 18:30	112	84	28	636	Recommended
14	Base	Saturday	Increase from 20 min. to 15 min. 12:30 to 18:30	107	84	23	636	Recommended
2	Base	Saturday	Increase from 20 min. to 15 min. 18:30 to 21:30	102	84	18	1590	Recommended
118	Base	Sunday	Increase from 30 min. to 20 min. 12:30 to 18:30	88	70	18	720	
86	Crosstown	Saturday	Increase from 20 min. to 15 min. 12:30 to 18:30	100	84	16	636	
85	Base	Sunday	Increase from 20 min. to 15 min. 12:30 to 18:30	97	84	13	720	