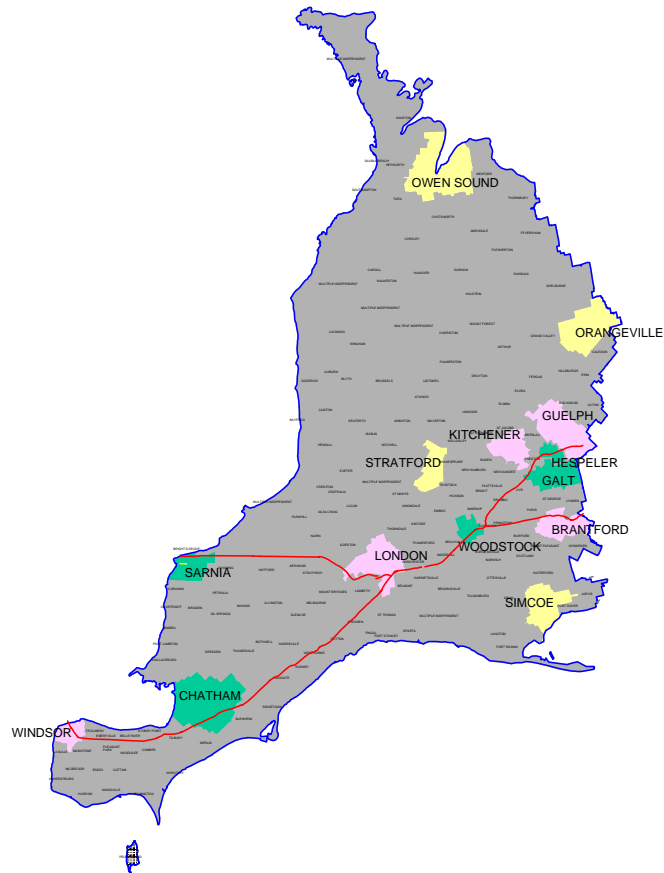


Initial Planning Document NPA 519 Numbering Relief



CNA

Science Applications International
Corporation (SAIC Canada)

Version 2 IPD Based on May 17 and 18 NPA 519 Relief Planning Committee Meeting

May 18, 2001

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Initial Planning Document NPA 519 Numbering Relief

1. EXECUTIVE SUMMARY

This Initial Planning Document identifies possible solutions for providing relief to the NPA 519 geographic area. Based on the October 30, 2000 NPA 519 Relief Planning Central Office Code Utilization Survey (R-COCUS), the existing 800 Central Office (CO) Codes, of which 769 are assignable, are forecast to exhaust in 4Q 2006.

Four alternatives, comprising seven relief options are presented in this Initial Planning Document. These options were evaluated using the assumptions shown below:

- A. The relief date for five of the relief options will be 2nd Q 2005 (18 months prior to the projected NPA 519 exhaust in 4Q 2006). These options include two Geographic Split options, two Dual NPA Concentrated Overlay options and a Distributed Overlay option.
- B. The relief date for the two options that use a single NPA Concentrated Overlay will be 2nd Q 2004 (30 months prior to the projected NPA 519 exhaust in 4Q 2006). This length of time is required to ensure that a sufficient number of CO Codes remain available to provide for the future growth of NPA 519, as well as to ensure that both the new Relief NPA and NPA 519 exhaust at approximately the same time.

1. Geographic Split

The following two options proposing the introduction of a new NPA in the NPA 519 serving area using a Geographic Split method of providing CO Code relief were evaluated:

- i The area served by the 120 Exchanges in Brant, Bruce, Dufferin, Grey, Halton, Hamilton-Wentworth, Huron, Oxford, Peel, Perth, Waterloo and Wellington counties would retain NPA 519 and the area served by the remaining 83 NPA 519 Exchanges in Elgin, Essex, Haldimond-Norfolk, Kent, Lambton and Middlesex counties would be grouped in the new NPA. The area that would retain NPA 519 contains the rapidly growing exchanges of Brantford, Galt, Guelph, Hespler, Kitchener-Waterloo, Orangeville, Owen Sound, Stratford and Woodstock, while the new NPA would contain the rapidly growing exchanges of Chatham, London, Sarnia and Windsor. Relief to NPA 519 and the new NPA is expected to last until the years 2025 and 2026 respectively. Using this relief option, approximately 1.3 million numbers would be required to change.
- ii The area served by the 94 Exchanges in Elgin, Essex, Kent, Lambton, Middlesex and Oxford counties would retain NPA 519 and the area served by the remaining 109 NPA 519 Exchanges in Brant, Bruce, Dufferin, Grey, Halton, Hamilton-Wentworth, Haldimond-Norfolk, Huron, Peel, Perth, Waterloo and Wellington counties would be grouped in the new NPA. The area that would retain NPA 519 contains the rapidly growing exchanges of Chatham, London, Sarnia, Windsor and Woodstock, while the new NPA would contain the rapidly growing exchanges of Brantford, Galt, Guelph, Hespler, Kitchener-Waterloo, Orangeville, Owen Sound and Stratford. Relief to NPA 519 and the new NPA is expected to last until the years 2027 and 2025 respectively. Using this relief option, approximately 1.3 million numbers would be required to change.

2. Dual NPA Concentrated Overlay

The following two options proposing the simultaneous introduction of two new NPAs in the NPA 519 serving area using the Concentrated Overlay method of providing CO Code relief were evaluated:

- i This option proposes a concentrated overlay in the NPA 519 area served by the 120 Exchanges in Brant, Bruce, Dufferin, Grey, Halton, Hamilton-Wentworth, Huron, Oxford, Peel, Perth, Waterloo and Wellington counties with the first new NPA and to simultaneously overlay the area served by the remaining 83 NPA 519 Exchanges in Elgin, Essex, Haldimond-Norfolk, Kent, Lambton and Middlesex counties with a second new NPA. Relief to NPA 519 and the two new NPAs is expected to last until the years 2006, 2045 and 2045 respectively.
- ii This option proposes a concentrated overlay in the NPA 519 area served by the 109 Exchanges in Brant, Bruce, Dufferin, Grey, Halton, Hamilton-Wentworth, Haldimond-Norfolk, Huron, Peel, Perth, Waterloo and Wellington counties with the first new NPA and to simultaneously overlay the area served by the remaining 94 NPA 519 Exchanges in Elgin, Essex, Kent, Lambton, Middlesex and Oxford counties with a second new NPA. Relief to NPA 519 and the two new NPAs is expected to last until the years 2006, 2045 and 2045 respectively.

3. Single NPA Concentrated Overlay

The following two options proposing the introduction of a new NPA in the NPA 519 serving area using the Concentrated Overlay method of providing CO Code relief were evaluated:

- i This option proposes to overlay the NPA 519 area served by the 121 Exchanges in Brant, Dufferin, Elgin, Essex, Haldimond-Norfolk, Halton, Hamilton-Wentworth, Kent, Middlesex, Oxford, Peel, Waterloo and Wellington counties with the new NPA, while the area served by the remaining 82 NPA 519 Exchanges in Bruce, Grey, Huron, Lambton and Perth counties would continue to grow using the remaining CO Codes available for assignment in NPA 519. Relief to NPA 519 and the new NPA is expected to last until the years 2028 and 2028 respectively.
- ii This option proposes to overlay the NPA 519 area served by the 110 Exchanges in Brant, Dufferin, Elgin, Essex, Kent, Middlesex, Oxford, Waterloo and Wellington counties with the new NPA, while the area served by the remaining 93 NPA 519 Exchanges in Bruce, Grey, Haldimond-Norfolk, Halton, Hamilton-Wentworth, Huron, Lambton, Peel and Perth counties would continue to grow using the remaining CO Codes available for assignment in NPA 519. Relief to NPA 519 and the new NPA is expected to last until the years 2022 and 2026 respectively.

4. Distributed Overlay

Introduce a New NPA using the Distributed Overlay method.

This option proposes to overlay all 210 Exchanges in NPA 519 with a new NPA. Relief to NPA 519 and the new NPA is expected to last until the years 2006 and 2025 respectively.

The following is a comparison of the alternatives evaluated:

Description	NPA 519 Geographic Split (1-i)	NPA 519 Geographic Split (1-ii)	NPA 519 Dual Concentrated Overlays (2-i)	NPA 519 Dual Concentrated Overlays (2-ii)
Exhaust – NPA 519	2025	2027	2006	2006
Exhaust – 1 st NPA	2026	2025	2045	2045
Exhaust – 2 nd NPA	N/A	N/A	2045	2045
Number Changes Required	1.3M	1.3 M	Nil	Nil
Dialling Impact	7/10 Digits	7/10 Digits	10 Digits	10 Digits
Permissive Dialling	Required	Required	Required	Required

Description	NPA 519 Concentrated Overlay (3-i)	NPA 519 Concentrated Overlay (3-ii)	NPA 519 Distributed Overlay (4-i)
Exhaust – NPA 519	2028	2022	2006
Exhaust – New NPA	2028	2026	2025
Approximate Number Changes Required	Nil	Nil	Nil
Dialling Impact	10 Digits	10 Digits	10 Digits
Permissive Dialling	Required	Required	Required

This Initial Planning Document is being issued in accordance with the Canadian Steering Committee on Numbering approved NPA Relief Planning and Notification Guidelines (INC 97-0404-016, dated January 27, 1999) to facilitate the selection of a consensus NPA 519 code relief method and a relief date.

Given the magnitude of this undertaking, inter-company commitment and co-operation are essential throughout the planning, provisioning and implementation stages of the introduction of the new NPA(s).

2. INTRODUCTION

NPA 519 consists of 210 Exchanges including the rapidly growing exchanges of Brantford, Chatham, Galt, Goderich, Guelph, Hespeler, Kitchener-Waterloo, London, Orangeville, Owen Sound, Sarnia, Simcoe, Stratford, Windsor and Woodstock, located in the south western part of Ontario in Canada. The majority of the projected growth in NPA 519 is mainly limited to these 15 exchanges. In the remaining 188 exchanges there is virtually no projected growth.

The rapidly growing number of CO Codes due to cellular expansion and local competition in a few specific exchanges is exhausting the number of CO Codes available for assignment in NPA 519.

It is very important to closely monitor the expansion plans of all existing and emerging service providers to ensure that relief is provided far enough in advance that no shortage of assignable CO Codes occurs and that a jeopardy condition does not arise.

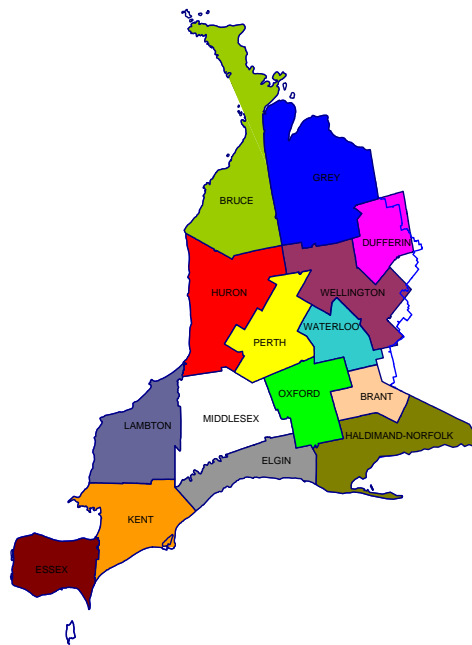


Figure 1 Existing NPA 519 (Counties)

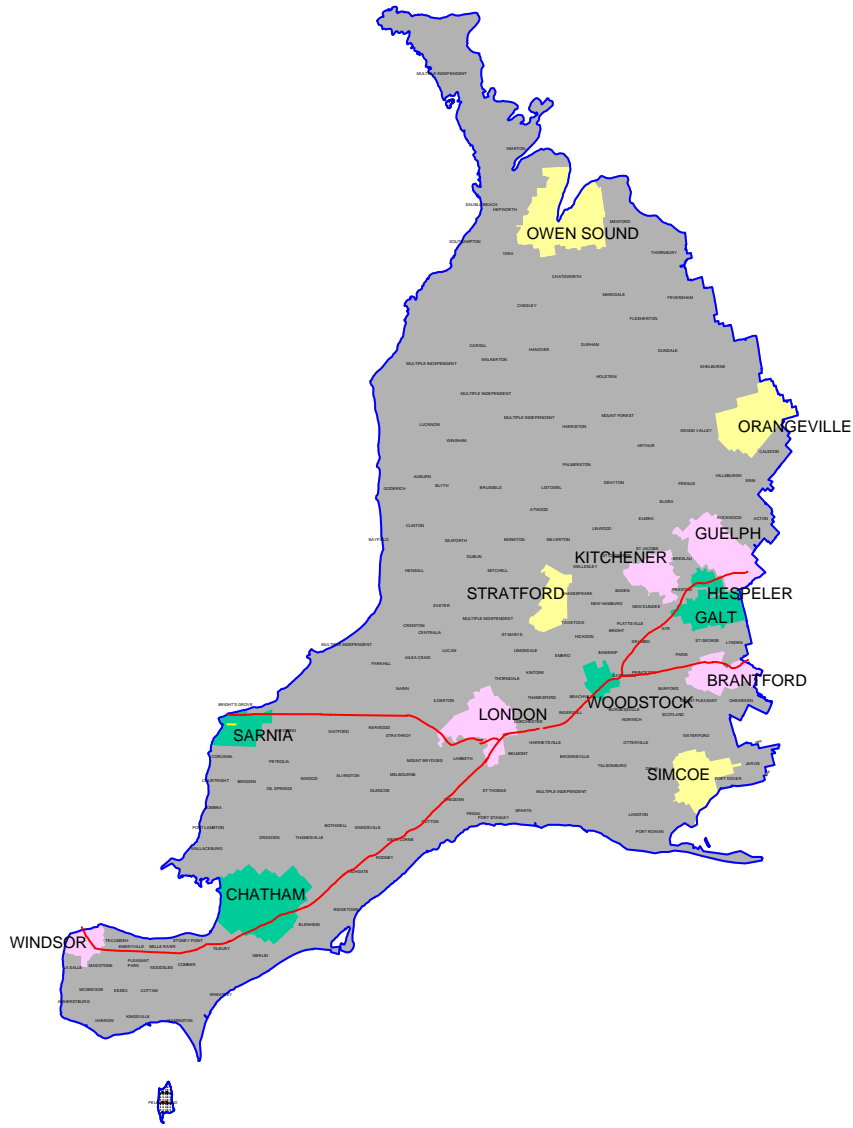


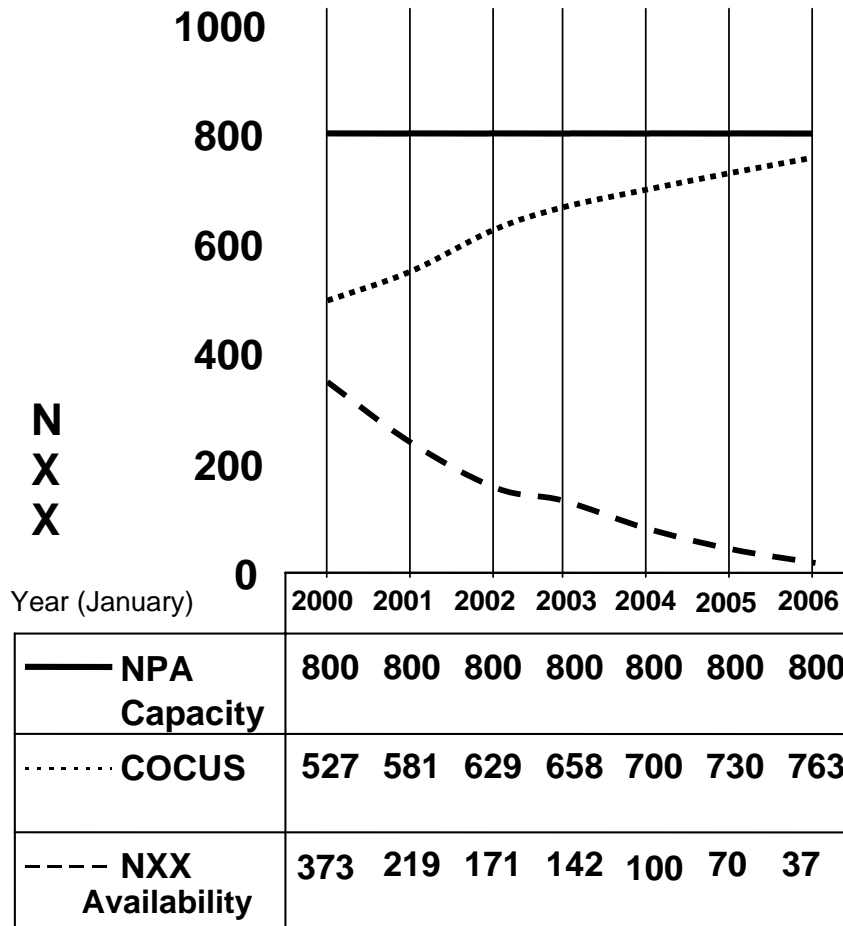
Figure 2 Existing NPA 519 (Exchanges)

3. CENTRAL OFFICE CODE EXHAUST

3.1. NPA 519 R-COCUS

Results of the October 30, 2000 R-COCUS indicate that CO Codes in NPA 519 are expected to exhaust by the 4th quarter of 2006.

The year over year change in the forecasts due to new business strategies, introduction of wireless and local competition have contributed to the earlier than expected requirement for relief of NPA 519. The following graphs represent the rate of CO Code utilization in NPA 519 based on results from the October 30, 2000 R-COCUS.



[Figure 3 NPA 519 CO Code Exhaust October 30, 2000 R - COCUS](#)

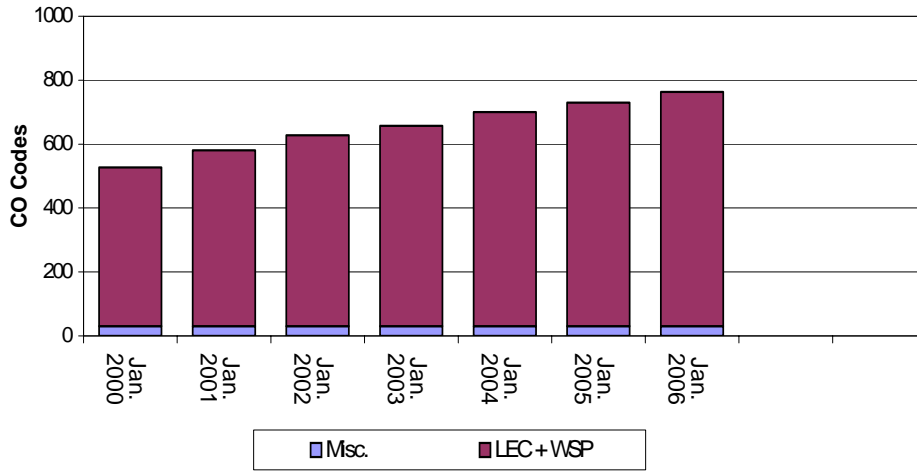
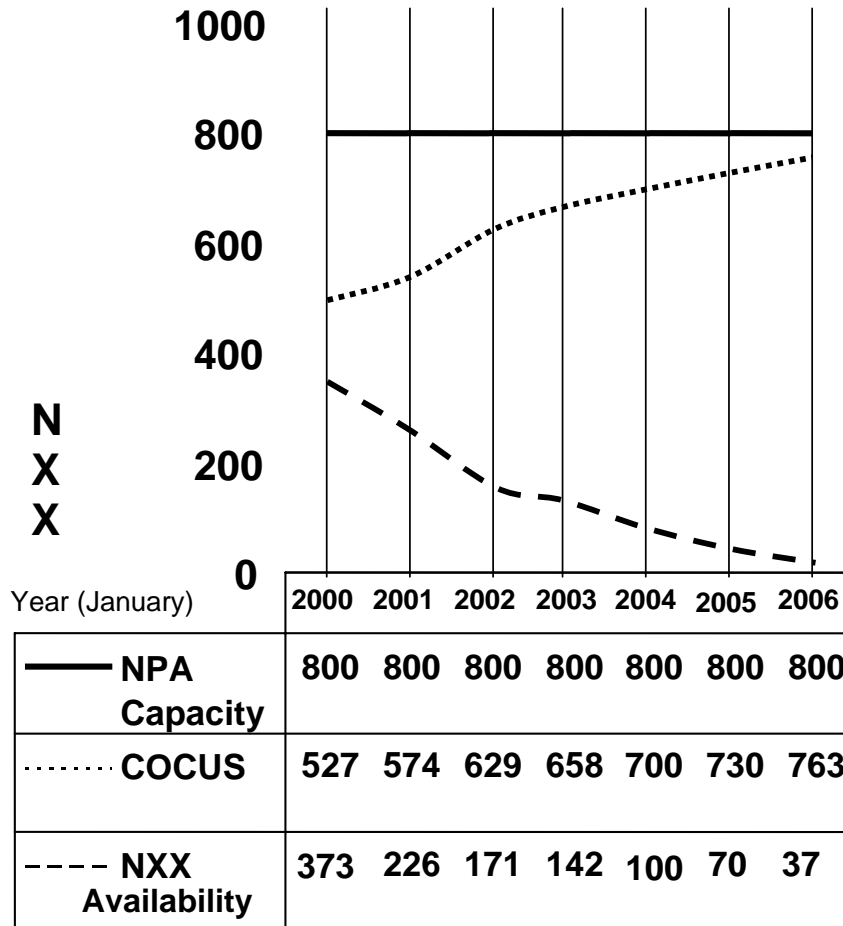


Figure 4 NPA 519 October 30, 2000 R - COCUS

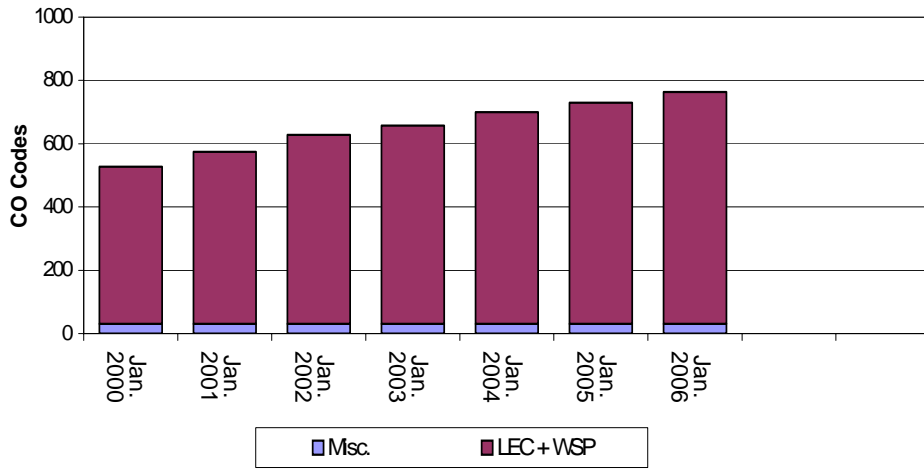
NPA 519 relief must be in place well in advance of reaching 769 assigned CO Codes, to allow for forecast volatility.

3.2. NPA 519 ACTUAL (2000-2001) and R-COCUS (2002-2006)

The following graphs represent the rate of CO Code utilization in NPA 519. Actual January 1st CO Code assignments for the years 2000 and 2001 and results from the October 30, 2000, R-COCUS for the years 2002 to 2006 as of January 1 are represented.



[Figure 5 NPA 519 CO Code Exhaust Actual \(2000-2001\) and R-COCUS \(2002-2006\)](#)



[Figure 6 NPA 519 CO Code Exhaust Actual \(2000-2001\) and R-COCUS \(2002-2006\)](#)

4. CODE RELIEF METHODS

Once the necessity for NPA code relief was established, all code relief methods were considered, but only the following alternatives were examined in detail.

1. Geographic Split (Two options);
2. Dual NPA Concentrated Overlays (Two options);
3. Concentrated Overlay (Two options);
4. Distributed Overlay.

4.1. *Geographic Split*

4.1.1. *Definition*

By this method, the exhausting NPA is split into two or more geographic areas, leaving the existing NPA code to serve an area with the highest consumer density (to minimize number changes), and assigning a new NPA code(s) to the remaining area. This method traditionally divides areas by jurisdictional, natural or physical boundaries between the old and the new NPA.

NPA splits have occurred with enough frequency so that technical aspects have been addressed and established implementation procedures are generally understood. Public education and acceptance of the process has been made easier because of the numerous NPA splits that have occurred throughout North America. This method generally provides long-term relief for an area.

4.1.2. *General Attributes*

- Old method of NPA relief is familiar to the public and has well established implementation procedures.
- Ten-digit dialling required for local calls between different NPAs.
- Number changes required in new NPA boundaries.
- Reprogramming or replacement of equipment (switches, PBXs, cellular phones, etc.).
- Existing customers inconvenienced.
- More economic burden (businesses, public costs, stationery, etc.).
- Not as expensive to display in telephone directory.
- Requires a permissive dialling period.
- Possible boundary disputes.

4.2. Overlay

4.2.1. Definition

An NPA overlay occurs when more than one NPA code serves the same geographic area. Opening up a new NPA code provides code relief when the existing NPA is exhausted. Numbers from the new NPA are assigned for new growth on a carrier neutral basis, i.e., first come first served. This method necessitates 10-digit dialling of local calls between the old and new NPAs coincident with NXX codes being implemented in the new NPA (universal 10-digit dialling for all local calls eliminates customer confusion).

A Concentrated Overlay strategy is considered when the growth in telephone numbers continuously occurs or is expected to occur in a specific area of the existing NPA.

A Distributed Overlay strategy is considered in situations when the growth in telephone numbers is expected to be more or less uniform throughout the existing NPA.

4.2.2. General Attributes

- Requires universal 10-digit dialling within and between NPAs.
- No number changes are required for existing customers.
- Least disruptive to end-users.
- Less economic burden for existing business.
- Same location, two NPAs in residence/business.
- Increased directory costs.

5. IMPACT OF RELIEF METHODS

Four alternatives, comprising seven relief options are presented in this Initial Planning Document. These options were evaluated using the assumptions shown below:

- A. The relief date for five of the relief options will be 2nd Q 2005 (18 months prior to the projected NPA 519 exhaust in 4Q 2006). These options include two Geographic Split options, two Dual NPA Concentrated Overlay options and a Distributed Overlay option.
- B. The relief date for the two options that use a single NPA Concentrated Overlay will be 2nd Q 2004 (30 months prior to the projected NPA 519 exhaust in 4Q 2006). This length of time is required to ensure that a sufficient number of CO Codes remain available to provide for the future growth of NPA 519, as well as to ensure that both the new Relief NPA and NPA 519 exhaust at approximately the same time.

5.1. Geographic Split

There are no municipal, physical or natural boundaries that can be used as reference points to split the NPA. However for the ease of understanding, exchanges have been grouped in to 18 counties where they are physically located. Two geographic splits were assessed as follows:

5.1.1. NPA 519 Geographic Split (Option 1-i):

The area served by the 120 Exchanges in Brant, Bruce, Dufferin, Grey, Halton, Hamilton-Wentworth, Huron, Oxford, Peel, Perth, Waterloo and Wellington counties would retain NPA 519 and the area served by the remaining 83 NPA 519 Exchanges in Elgin, Essex, Haldimond-Norfolk, Kent, Lambton and Middlesex counties would be grouped in the new NPA. The area that would retain NPA 519 contains the rapidly growing exchanges of Brantford, Galt, Guelph, Hespler, Kitchener-Waterloo, Orangeville, Owen Sound, Stratford and Woodstock, while the new NPA would contain the rapidly growing exchanges of Chatham, London, Sarnia and Windsor. Relief to NPA 519 and the new NPA is expected to last until the years 2025 and 2026 respectively. Using this relief option, approximately 1.3 million numbers would be required to change.

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5.1.2. NPA 519 Geographic Split (Option 1-ii):

The area served by the 94 Exchanges in Elgin, Essex, Kent, Lambton, Middlesex and Oxford counties would retain NPA 519 and the area served by the remaining 109 NPA 519 Exchanges in Brant, Bruce, Dufferin, Grey, Halton, Hamilton-Wentworth, Haldimond-Norfolk, Huron, Peel, Perth, Waterloo and Wellington counties would be grouped in the new NPA. The area that would retain NPA 519 contains the rapidly growing exchanges of Chatham, London, Sarnia, Windsor and Woodstock, while the new NPA would contain the rapidly growing exchanges of Brantford, Galt, Guelph, Hespler, Kitchener-Waterloo, Orangeville, Owen Sound and Stratford. Relief to NPA 519 and the new NPA is expected to last until the years 2027 and 2025 respectively. Using this relief option, approximately 1.3 million numbers would be required to change.

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5.2. Dual NPA Concentrated Overlay

Two options were evaluated to simultaneously introduce two new NPAs in the NPA 519 serving area using the Concentrated Overlay method of providing CO Code relief.

The main advantage of all alternatives introducing an Overlay method over the Split method is that number changes are not required. However it eliminates 7-digit local dialling and introduces 10-digit local dialling throughout the NPA serving area.

5.2.1. NPA 519 Dual Concentrated Overlays (Option 2-i):

This option proposes a concentrated overlay in the NPA 519 area served by the 120 Exchanges in Brant, Bruce, Dufferin, Grey, Halton, Hamilton-Wentworth, Huron, Oxford, Peel, Perth, Waterloo and Wellington counties with the first new NPA and to simultaneously overlay the area served by the remaining 83 NPA 519 Exchanges in Elgin, Essex, Haldimond-Norfolk, Kent, Lambton and Middlesex counties with a second new NPA. Relief to NPA 519 and the two new NPAs is expected to last until the years 2006, 2045 and 2045 respectively.

5.2.2. NPA 519 Dual Concentrated Overlay (Option 2-ii):

This option proposes a concentrated overlay in the NPA 519 area served by the 109 Exchanges in Brant, Bruce, Dufferin, Grey, Halton, Hamilton-Wentworth, Haldimond-Norfolk, Huron, Peel, Perth, Waterloo and Wellington counties with the first new NPA and to simultaneously overlay the area served by the remaining 94 NPA 519 Exchanges in Elgin, Essex, Kent, Lambton, Middlesex and Oxford counties with a second new NPA. Relief to NPA 519 and the two new NPAs is expected to last until the years 2006, 2045 and 2045 respectively.

5.3. Single NPA Concentrated Overlay

Two different options were considered to introduce a new NPA using the Concentrated Overlay method to provide relief to the NPA 519 serving area.

The main advantage of all alternatives introducing an Overlay method over the Split method is that number changes are not required. However it eliminates 7-digit local dialling and introduces 10-digit local dialling throughout the NPA serving area.

5.3.1. NPA 519 Concentrated Overlay (Option 3-i):

This option proposes to overlay the NPA 519 area served by the 121 Exchanges in Brant, Dufferin, Elgin, Essex, Haldimond-Norfolk, Halton, Hamilton-Wentworth, Kent, Middlesex, Oxford, Peel, Waterloo and Wellington counties with the new NPA, while the area served by the remaining 82 NPA 519 Exchanges in Bruce, Grey, Huron, Lambton and Perth counties would continue to grow using the remaining CO Codes available for assignment in NPA 519. Relief to NPA 519 and the new NPA is expected to last until the years 2028 and 2028 respectively.

5.3.2. NPA 519 Concentrated Overlay (Option 3-ii):

This option proposes to overlay the NPA 519 area served by the 110 Exchanges in Brant, Dufferin, Elgin, Essex, Kent, Middlesex, Oxford, Waterloo and Wellington counties with the new NPA, while the area served by the remaining 93 NPA 519 Exchanges in Bruce, Grey, Haldimond-Norfolk, Halton, Hamilton-Wentworth, Huron, Lambton, Peel and Perth counties would continue to grow using the remaining CO Codes available for assignment in NPA 519. Relief to NPA 519 and the new NPA is expected to last until the years 2022 and 2026 respectively.

5.4. Introduce a New NPA using the Distributed Overlay Method

5.4.1. Distributed Overlay Method:

This option proposes to overlay all 210 Exchanges in NPA 519 with a new NPA. Relief to NPA 519, and the new NPA is expected to last until the years 2006 and 2025 respectively.

6. DIALLING CHANGES FOR LOCAL CALLS

The following tables reflect the dialling arrangement for each alternative for Local calls only.

The Toll call dialling arrangement is not impacted due to the NPA relief.

Geographic Split	Today	After Relief
Landline to Wireless within NPA	7-digits	7-digits
Landline to Wireless between NPAs	10-digits	10-digits
Landline to Landline within NPA	7-digits	7-digits
Landline to Landline between NPAs	10-digits	10-digits
Wireless to Wireless within NPA	7-digits	7-digits
Wireless to Wireless between NPAs	10-digits	10-digits

Overlay (Concentrated & Distributed)	Today	After Relief
Landline to Wireless within NPA	7-digits	10-digits
Landline to Wireless between NPAs	10-digits	10-digits
Landline to Landline within NPA	7-digits	10-digits
Landline to Landline between NPAs	10-digits	10-digits
Wireless to Wireless within NPA	7-digits	10-digits
Wireless to Wireless between NPAs	10-digits	10-digits

7. PROPOSED SCHEDULE

Canadian NPA Relief Planning Timeline		Time	Cumulative	Start	End
Number	Task or Event	Required (months)	Time (months)	Date	Date
1	CNA identifies NPA exhaust and notifies by e-mail CRTC staff, CSCN, NANP-A & CISC that the NPA will exhaust*				07-00
2	CNA conducts NPA Relief Planning COCUS and begins preparation of IPD				10-00
3	CRTC issued Public Notice 2001-21, to establish RPC and Interested Parties list. CNA announces the date for the initial NPA Relief Planning meeting and requests contributions			02-01	02-01
4	CNA completes and distributes IPD to RPC				03-01
5	RPC participants review IPD			03-01	05-01
6	CNA chairs initial RPC meeting to present, explain and discuss the NPA Relief Planning process and the IPD. RPC schedules next meeting/conference call.		10	05-01	
7	CNA distributes revised IPD based upon initial meeting discussions.	0.5	10.5		06-01
8	RPC participants provide comments on revised IPD as contributions to the RPC	0.5	11.00		07-01
9	RPC participants review contributions, if any, prior to second meeting/conference call	0.5	11.5		07-01
10	CNA chairs second RPC meeting/conference call to finalize Planning Document	0	11.5		
11	CNA revises and forwards Planning Document (PD) to the CISC and CRTC	0.5	12.00		08-01
12	CISC reviews and forwards PD to the CRTC for approval	2	14.00		10-01
13	CRTC initiates a process to approve/revise the PD and establish the Relief Option and Date	2	16.00	10-01	12-01
14	Interested Parties submit comments and reply comments to CRTC	3	19.00	12-01	03-02
15	CRTC issues decision & directs RPC to develop an NPA Relief Implementation Plan (RIP)	4.5	23.5	03-02	08-02
16	CNA requests and obtains assignment of Relief NPA(s) from the NANP-A and schedules meeting of RPC in order to develop a consensus RIP and Planning Letter (PL)	0.5	19.5	08-02	09-02
17	CNA chairs RPC meeting to create Task Forces	0	19.5	09-02	09-02
18	RPC and its Task Forces develop and obtain consensus on the various components of the RIP and PL (a series of meetings/conference calls might be required)	4	23.5	01-03	01-03

19	CNA forwards consensus RIP to CISC and the PL to NANPA	0.5	24	02-03	02-03
20	CISC reviews and forwards RIP to the CRTC for approval	2	26	04-03	04-03
Canadian NPA Relief Planning Timeline		Time	Cumulative	Start	End
		Required	Time	Date	Date
Number	Task or Event	(months)	(months)		
21	CRTC approves RIP and notifies Interested Parties	1	27	04-03	06-03
22	CNA issues second media release and sends approved RIP to NANP-A, TRA, LNP Consortium and RPC members	0.5	27.5	06-03	06-03
23	Task Forces, Telecommunications Service Providers and users execute the RIP	15	42.5	09-04	09-04
24	Permissive Dialling Period in the event of a Split / 7- to 10- digit Dialling Transition Period in the event of an Overlay	9	51.5	09-04	06-05
25	Relief Date (generally 12 to 18 months prior to the Projected Exhaust Date)	0	51.5	06-05	06-05
26	CNA submits Final Report to CISC within two months of Relief implementation		51.5	06-05	08-05
27	Projected Exhaust Date	15	66.5	12-06	12-06

* When an NPA is projected to exhaust within a 72 months period, the CNA must commence the Relief Planning process.

** In the event that a new COCUS or actual demand indicates that the exhaust date will change significantly, the CNA may convene a meeting of the NPA Relief Planning Working Group to review the issue and make a recommendation to the CISC and CRTC.



Figure 7 NPA 519 Geographic Split (Plan 1 - i)

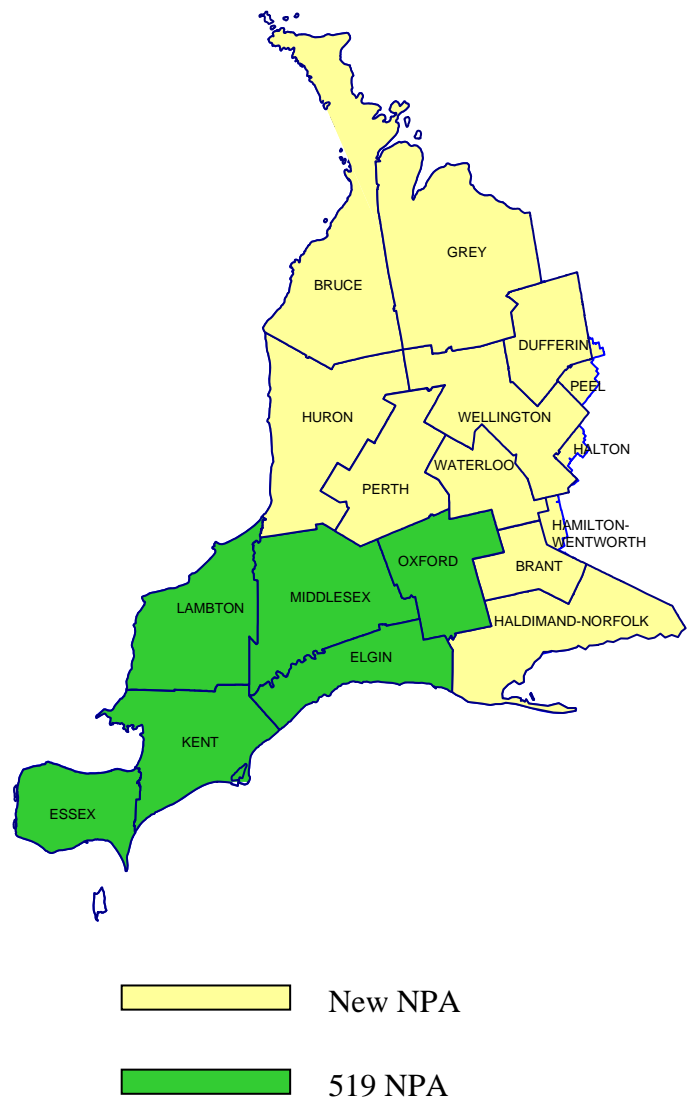


Figure 8 NPA 519 Geographic Split (Plan 1 - ii)



Figure 9 NPA 519 Dual Concentrated Overlays (Plan 2 - i)

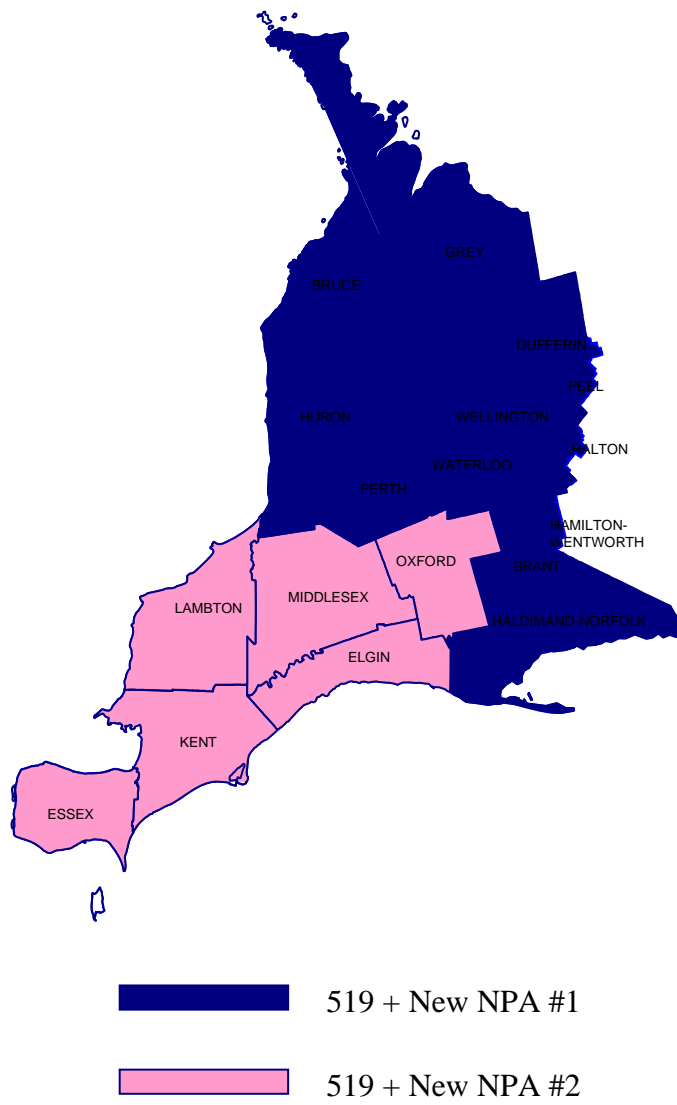


Figure 10 NPA 519 Dual Concentrated Overlays (Plan 2 - ii)

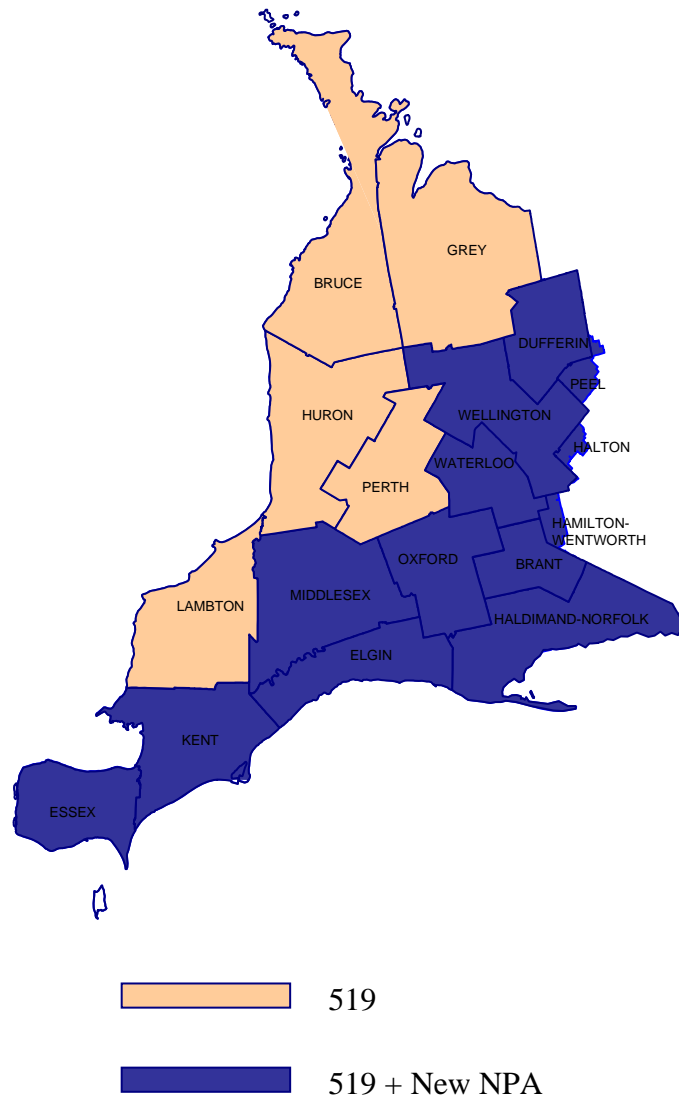


Figure 11 NPA 519 Single NPA Concentrated Overlay (Plan 3 - i)

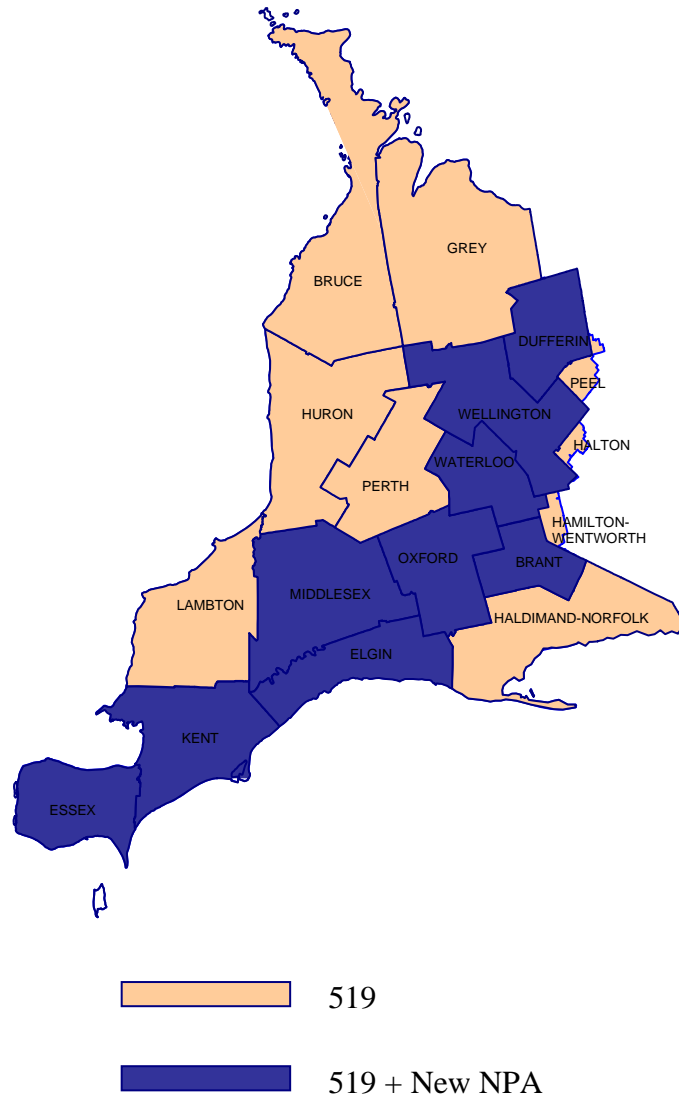


Figure 12 NPA 519 Single NPA Concentrated Overlay (Plan 3 - ii)



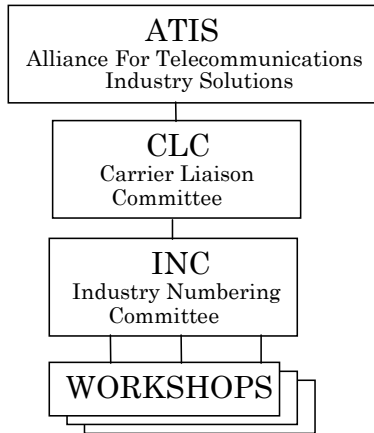
Figure 13 NPA 519 Distributed Overlay (Plan 4)



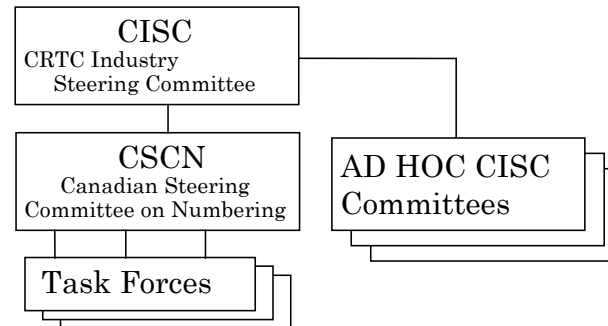
[Appendix 1 Canadian Geographic NPAs](#)

Industry Fora

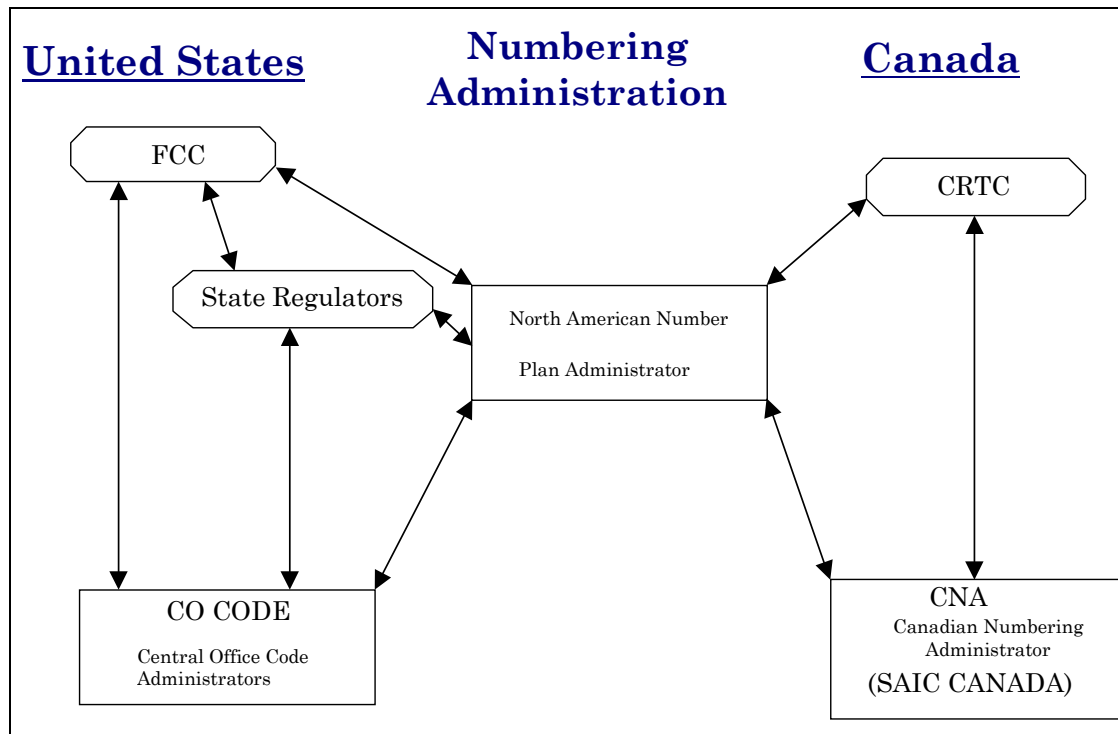
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CANADIAN



[Appendix 2 Industry Fora](#)



Appendix 3 Numbering Administration

The *NPA Code Relief Planning & Notification Guidelines* may be obtained from the CNA website at http://www.cnac.ca/numres/npa_relief/97040416.doc. **Double-click on the object below to open and view this document.**



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NPA CODE RELIEF PLANNING & NOTIFICATION GUIDELINES

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[Appendix 4 NPA Code Relief Planning & Notification Guidelines](#)

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