

**Report for January 2017 G-NRUF – Canadian NPAs  
to the  
Canadian Steering Committee on Numbering (CSCN)**

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Issued by:  
Canadian Numbering Administrator  
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## 1. Purpose of G-NRUF

The purpose of the General Numbering Resource Utilization Forecast (G–NRUF) is to provide an annual forecast to aid in projecting Numbering Plan Area (NPA) and North American Numbering Plan (NANP) exhaust. The G–NRUF process requires current and prospective Code Holders to submit actual and forecasted annual data regarding their current and future use of Central Office (CO) Codes to the Canadian Numbering Administrator (CNA) on an annual basis.

The CNA has prepared this report in accordance with the Canadian Numbering Resource Utilization Forecast (C-NRUF) Guideline (the Guideline), Version 5.1 approved by the Canadian Radio-television and Telecommunications Commission (CRTC) on 29 April 2015 in Telecom Decision CRTC 2015-166.

Included as attachments to this report are:

- 2017 G–NRUF Aggregate Results and Quantity of CNA CO Codes as of 1 January 2017;
- Historical G–NRUF Graphs for Canadian NPAs; and,
- CSCN Letter dated 25 October 2016 including Methodology and Assumptions.

## 2. High Level Summary

The results from the January 2017 G-NRUF show significant changes in several NPAs compared to the 2016 G-NRUF. The following are some of the factors that are driving these changes:

- 1) Several Telecommunications Service Providers (TSPs) have submitted forecasts that indicate an expansion of their footprint into new areas over the next few years as they take advantage of Telecom Decision CRTC 2004-46, *Trunking arrangements for the interchange of traffic and the point of interconnection between local exchange carriers*.
- 2) There is also an indication that established TSPs have increased their forecast to meet the demand created by new technologies and new services.
- 3) The introduction of a new numbering resource under the Non-Geographic Code Assignment Guideline is expected to alleviate some of the issues associated with Machine-to-Machine demand but is difficult for both the TSPs and the CNA to quantify at this time.

The impact of each of the above factors varies from NPA to NPA. See the following table for a list of NPAs that are currently undergoing or entering NPA Relief Planning:

NPA	PED		Remarks
	Most recent 2016 NRUF	Jan 2017 NRUF	
204-431	Feb-2025	Aug-2023	Entering in relief planning window. Second Relief No Longer Required.
	Aug-2035		
226-548-519	Jun-2024	Oct-2026	Second Relief No Longer Required
	Jun-2031		

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NPA	PED		Remarks
	Most recent 2016 NRUF	Jan 2017 NRUF	
236-250-604-778	Feb-2021	May-2020	Relief Planning has Started iaw Telecom Notice of Consultation CRTC 2016-208. Third Relief Is Required
	Sep-2030	Jun-2029	
		May-2038	
249-705	Jun-2023	Jul-2024	Second Relief No Longer Required
	Jun-2031		
289-365-905	Jul-2023	Sep-2023	Entering relief planning window
	Jul-2032	Sep-2033	
306-639	Jan-2025	Jul-2022	Entering relief planning window
	Apr-2037	Oct-2034	
343-613	Mar-2024	Apr-2025	Second Relief No Longer Required
	Dec-2034		
403-587-780-825	Nov-2022	Mar-2022	Entering relief planning window Third Relief Is Required
	Dec-2029	Jul-2029	
		Jul-2037	
416-437-647	Aug-2025	Apr-2030	Second Relief No Longer Required
	Feb-2034		
418-581	Mar-2019	Sep-2020	Relief Date November 24, 2018 iaw Telecom Decision CRTC 2017-32. Third Relief No Longer Required
	May-2026	Nov-2031	
	Jul-2033		
450-579	Jan-2023	Jun-2022	Entering relief planning window
	Oct-2032	Oct-2036	
506	May-2020	Dec-2021	Relief Planning has Started iaw Telecom Notice of Consultation CRTC 2016-206.
	Feb-2032		
709	May-2019	Aug-2019	Relief Date November 24, 2018 iaw Telecom Decision CRTC 2017-35. Second Relief No Longer Required
	Feb-2032		
819-873	Jun-2024	Aug-2023	
		Mar-2037	

3. Current and Past G-NRUF Projected Exhaust Dates

NPA	LOCATION	2013	2014	2015	2016	2017
204/431	Manitoba	Feb. 2030	Mar. 2029	Jan. 2032	Aug. 2027	Aug. 2023
226/519	S. Ontario	Oct. 2017	May 2018 Apr. 2031	Dec. 2017 Mar. 2029	Feb. 2017 Feb. 2027	Oct. 2026
236/250/604/778	BC	Apr. 2014 May 2022 Apr. 2030	Apr. 2022 Jan. 2030	Jan. 2024 Apr. 2033	Apr. 2021 Nov. 2030	May 2020 Jun. 2029 May 2038
249/705	N. E. Ontario	Jul. 2026	Aug. 2026	Jul. 2030	Feb. 2025	Jul. 2024
289/365/905	Toronto Fringe	Mar. 2025 Sep. 2035	Feb. 2025 Jan. 2036	Jan. 2026 Beyond 2037	Jul. 2023. Jul. 2032	Sep. 2023 Sep. 2033
306/639	Saskatchewan	May 2013	Beyond 2036	Beyond 2037	Jan. 2025 Apr. 2037	Jul. 2022 Oct. 2034
343/613	Ottawa area	Jan. 2031	Jun. 2030	Sep. 2033	Mar. 2024 Dec. 2034	Apr. 2025

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<b>NPA</b>	<b>LOCATION</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
403/587/780	Alberta	Aug. 2017 Mar. 2028	Jan. 2017 May 2026	May 2017 Nov. 2026	Nov. 2022 Dec. 2029	Mar. 2022 Jul. 2029 Jul. 2037
416/437/647	Toronto	Dec. 2021 Aug. 2028 Jun. 2035	Mar. 2025 Mar. 2034	Jan. 2027 Beyond 2037	Aug. 2025 Feb 2034	Apr. 2030 Beyond 2039
418/581	N. E. Quebec	Apr. 2022	Jun. 2022	Nov. 2023	Apr. 2019 May 2026 Jul. 2033	Sep. 2020 Nov. 2031
438/514	Montreal	Jul. 2024	Jan. 2025	Aug. 2026	Aug. 2026	Sep. 2028
450/579	Montreal Fringe	Jun. 2030	Sep. 2025	Nov. 2032	Jan. 2023 Oct. 2032	Jun. 2022 Oct. 2036
506	New Brunswick	Jun. 2029	Feb. 2025	Apr. 2025	Feb. 2021	Dec. 2021
709	Nfld & Labrador	Oct. 2033	Oct. 2023	Aug. 2024	May 2019 Feb 2032	Aug. 2019
782/902	Nova Scotia & PEI	Oct. 2014	Dec. 2014	Oct. 2036	May 2030	Nov. 2029
807	N.W. Ontario	Beyond 2035	Beyond 2036	Beyond 2037	Beyond 2038	Beyond 2039
819/873	N. W. Quebec	Sep. 2035	Nov. 2032	Beyond 2037	Jun. 2024	Aug. 2023 Mar. 2037
867	Yukon, NWT, Nunavut	Beyond 2035	Beyond 2036	Beyond 2037	Jan. 2033	Jul. 2036

**4. Schedule of Future NRUF Activities in the Current Year**

<b>Due Date</b>	<b>NRUF Type</b>	<b>NRUF Format</b>	<b>NPA(s)</b>
31 July	J-NRUF	Format 3	418/581
31 July	J-NRUF	Format 3	709
31 October	J-NRUF	Format 3	418/581
31 October	J-NRUF	Format 3	709
10 August	R-NRUF	Format 2	204/431
10 August	R-NRUF	Format 2	236/250/604/778
10 August	R-NRUF	Format 2	289/365/905
10 August	R-NRUF	Format 2	306/639
10 August	R-NRUF	Format 2	403/587/780/825
10 August	R-NRUF	Format 2	450/579
10 August	R-NRUF	Format 2	506
10 August	R-NRUF	Format 2	819/873

**5. Summary of Challenges Encountered during the G-NRUF Process**

- a) The majority of the problems with NRUF submissions are created by companies not knowing how many codes they held as of 1 January 2017. Several companies only indicated their growth projection rather than the total number of CO Codes (i.e. non-cumulative data was submitted).
- b) The majority of TSPs appear to wait until either the last minute to submit their NRUF or rely on the CNA to remind them of the due date.
- c) The CNA continues to monitor and track the accuracy of the NRUF submissions between the forecast and actual assignment rates and continues to report this data to the CSCN. The way

the current process works, there are potential consequences for under-forecasting (e.g. constant resubmissions, limited to a previous forecast in the situation of a Jeopardy Condition) and there are no perceived negative consequences for over-forecasting.

## 6. Potential Solutions Identified by the CNA to Address G-NRUF Process Issues

- a) The CNA strives to instill the importance of an accurate forecast to TSPs, highlighting the consequences of inaccurate forecasting to both the industry and the public. Until the industry makes accurate forecasting a priority in the allocation of appropriate resources the CNA believes that the forecasts will remain volatile.
- b) The CSCN should strive to increase the participation of TSPs in its activities, such that they are more conversant with the significance of various numbering requirements (e.g., the G-NRUF process, Reserved and Held reports).
- c) Given the volatility of the forecast and the extra work required by the RPCs to constantly adjust Relief Implementation Schedules, the CNA recommends that once the initial Relief Implementation Date is established, this date would not be advanced, however could be delayed in extenuating circumstances. This would allow for better budgeting plans and allocation of resources within a given time frame as well as providing a consistent message to the public.

## 7. G-NRUF Assumptions

See the attached CSCN letter dated 25 October 2016.

As allowed by Item 4 of the CSCN letter, the CNA believes, based on its analysis of past growth and NRUF forecast data, that the five- or six-year forecast average annual growth was not the best methodology for projecting growth beyond the six-year forecast period. The CNA advised the CSCN during the conference call held on 21 March 2016 of the alternate method used. The CNA changed methodologies this year because several TSPs were forecasting expansion of their footprint over several years which would have artificially increased the average growth rate, thereby advancing the relief date for several NPAs after 2023 which would be outside the relief window. The CNA wanted a consistent methodology to allow the TSPs to establish their footprints across all NPAs without adversely impacting the long-term forecast while ensuring the stability of the near-term forecast.

To alleviate this inflated projection beyond 2023, the CNA chose to use either the Median or Average actual assignment rate of the previous five years.

## 8. Conclusion

In accordance with Section 4, Item 6 h) of the Canadian Numbering Resource Utilization Forecast (C-NRUF) Guideline, the CNA has conducted assessments, sought clarification and/or explanation from various TSPs to reconcile 2016 growth with current and historical forecasts to determine whether the 2017 NRUF results are reasonable and the Projected Exhaust Dates for all NPAs are realistic.

The CNA notes that the Canadian telecommunications environment continues to go through a period of significant change due to emerging technologies and TSPs continue to take advantage of Telecom Decision CRTC 2004-46, *Trunking arrangements for the interchange of traffic and the point of interconnection between local exchange carriers*.

The CNA expects that the introduction of the Non-Geographic Code Assignment Guideline could alleviate some of the issues associated with Machine-to-Machine demand but it is difficult to quantify at this point.

Based on the data and explanations provided by TSPs to the CNA's questions, the G-NRUF results appear reasonable and the Projected Exhaust Dates for Canadian NPAs are generally realistic and appear to be no more volatile than the NANPA is reporting for the United States.

Geographic NPAs ( Historical Actual Growth for Projection)																							
As of January 1																							
NPA / Years	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
204-431	972	1123	1237	1322	1459	1526	1571	1643	1692	1741	1790	1839	1888	1937	1986	2035	2084	2133	2182	2231	2280	2329	2378
226-519-548	1434	1611	1749	1837	1970	2142	2201	2253	2305	2357	2433	2485	2537	2589	2641	2693	2745	2797	2849	2901	2953	3005	3057
236-250-604-778	2673	2911	3058	3161	3282	3359	3441	3528	3615	3702	3789	3876	3963	4072	4159	4246	4333	4420	4507	4594	4681	4768	4878
249-705	928	1017	1067	1160	1307	1427	1543	1579	1651	1687	1723	1759	1795	1831	1867	1903	1939	1975	2011	2047	2083	2119	2155
289-365-905	1735	1918	2028	2151	2223	2278	2346	2455	2532	2609	2686	2763	2840	2917	2994	3071	3148	3257	3334	3411	3488	3565	3642
306-639	1121	1248	1312	1448	1543	1580	1644	1708	1772	1836	1900	1964	2028	2092	2156	2220	2284	2348	2439	2503	2567	2631	2695
343-613	1030	1104	1150	1230	1320	1453	1497	1542	1587	1668	1713	1758	1803	1848	1893	1938	1983	2028	2073	2118	2163	2208	2253
403-587-780-825	2459	2617	2873	2971	3070	3161	3363	3460	3557	3654	3751	3848	3945	4071	4168	4265	4362	4459	4556	4653	4750	4878	4975
416-437-647	1567	1662	1736	1817	1896	1970	2042	2091	2140	2189	2238	2287	2336	2385	2457	2506	2555	2604	2653	2702	2751	2800	2849
418-581	1256	1392	1483	1530	1653	1795	1875	1934	1993	2052	2111	2170	2229	2288	2347	2435	2494	2553	2612	2671	2730	2789	2848
438-514	1108	1194	1238	1301	1341	1383	1423	1454	1485	1516	1547	1578	1637	1668	1699	1730	1761	1792	1823	1854	1885	1916	1947
450-579	1093	1181	1236	1343	1421	1580	1655	1709	1763	1817	1871	1925	1979	2033	2087	2141	2195	2249	2303	2357	2445	2499	2553
506	564	618	658	719	774	831	845	870	891	916	941	966	991	1016	1041	1066	1091	1116	1141	1166	1191	1216	1241
709	570	627	761	846	983	1010	1017	1033	1049	1065	1081	1097	1113	1129	1145	1161	1177	1193	1209	1225	1241	1257	1273
782-902	904	988	1071	1117	1232	1272	1298	1342	1386	1430	1474	1518	1562	1628	1672	1716	1760	1804	1848	1892	1936	1980	2024
807	246	260	274	355	369	380	388	396	404	412	420	428	436	444	452	460	468	476	484	492	500	508	516
819-873	1026	1108	1182	1293	1361	1526	1566	1660	1716	1772	1828	1884	1940	1996	2052	2108	2164	2220	2276	2332	2388	2474	2530
867	252	276	315	359	396	490	515	536	557	578	599	620	641	662	683	704	725	746	767	788	850	871	892
NPA / Years	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039

Non-Geographic NPAs																							
As of January 1																							
NPA / Years	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
5YY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
600	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
6YY	19	50	83	115	158	200	241	278	315	352	389	426	463	500	537	574	611	648	685	722	759	796	833
9YY	39	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
NPA / Years	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039

Actual Vs Forecast																
NPA / Years	2012			2013			2014			2015			2016			5 Year
	Actual	Forecast	Delta	Actual	Forecast	Delta	Actual	Forecast	Delta	Actual	Forecast	Delta	Actual	Forecast	Delta	Average
<b>204-431</b>	43	133	32.3%	80	152	52.6%	31	101	30.7%	25	83	30.1%	87	113	77.0%	44.6%
<b>226-519-548</b>	38	127	29.9%	49	152	32.2%	38	155	24.5%	75	181	41.4%	72	216	33.3%	32.3%
<b>236-250-604-778</b>	98	209	46.9%	69	211	32.7%	76	256	29.7%	67	228	29.4%	332	476	69.7%	41.7%
<b>249-705</b>	38	76	50.0%	49	82	59.8%	25	92	27.2%	21	96	21.9%	47	94	50.0%	41.8%
<b>289-365-905</b>	74	123	60.2%	90	146	61.6%	30	147	20.4%	105	182	57.7%	82	195	42.1%	48.4%
<b>306-639</b>	15	47	31.9%	24	132	18.2%	64	58	110.3%	64	83	77.1%	206	181	113.8%	70.3%
<b>343-613</b>	22	64	34.4%	50	71	70.4%	18	59	30.5%	76	79	96.2%	56	107	52.3%	56.8%
<b>403-587-780-825</b>	91	134	67.9%	67	166	40.4%	86	207	41.5%	103	185	55.7%	261	362	72.1%	55.5%
<b>416-437-647</b>	60	189	31.7%	33	116	28.4%	34	85	40.0%	48	76	63.2%	66	104	63.5%	45.4%
<b>418-581</b>	108	66	163.6%	71	85	83.5%	58	90	64.4%	26	77	33.8%	36	139	25.9%	74.3%
<b>438-514</b>	51	91	56.0%	20	76	26.3%	25	80	31.3%	28	70	40.0%	38	68	55.9%	41.9%
<b>450-579</b>	64	75	85.3%	61	82	74.4%	29	82	35.4%	47	81	58.0%	65	106	61.3%	62.9%
<b>506</b>	10	19	52.6%	32	30	106.7%	39	59	66.1%	18	41	43.9%	25	81	30.9%	60.0%
<b>709</b>	12	19	63.2%	15	35	42.9%	22	48	45.8%	17	50	34.0%	14	51	27.5%	42.7%
<b>782-902</b>	34	62	54.8%	19	64	29.7%	42	29	144.8%	45	95	47.4%	87	133	65.4%	68.4%
<b>807</b>	4	5	80.0%	7	8	87.5%	10	9	111.1%	8	14	57.1%	9	21	42.9%	75.7%
<b>819-873</b>	52	78	66.7%	58	90	64.4%	34	71	47.9%	76	75	101.3%	56	129	43.4%	64.7%
<b>867</b>	15	13	115.4%	14	8	175.0%	26	13	200.0%	20	58	34.5%	33	54	61.1%	117.2%
			68.0%			62.9%			55.0%			51.3%			54.5%	

**Notes:**  
 Actual is based on Part 3 assignment date.  
 Forecast is from G-NRUF submissions, ignoring Administrative codes.  
 Delta is Actual/Forecast.

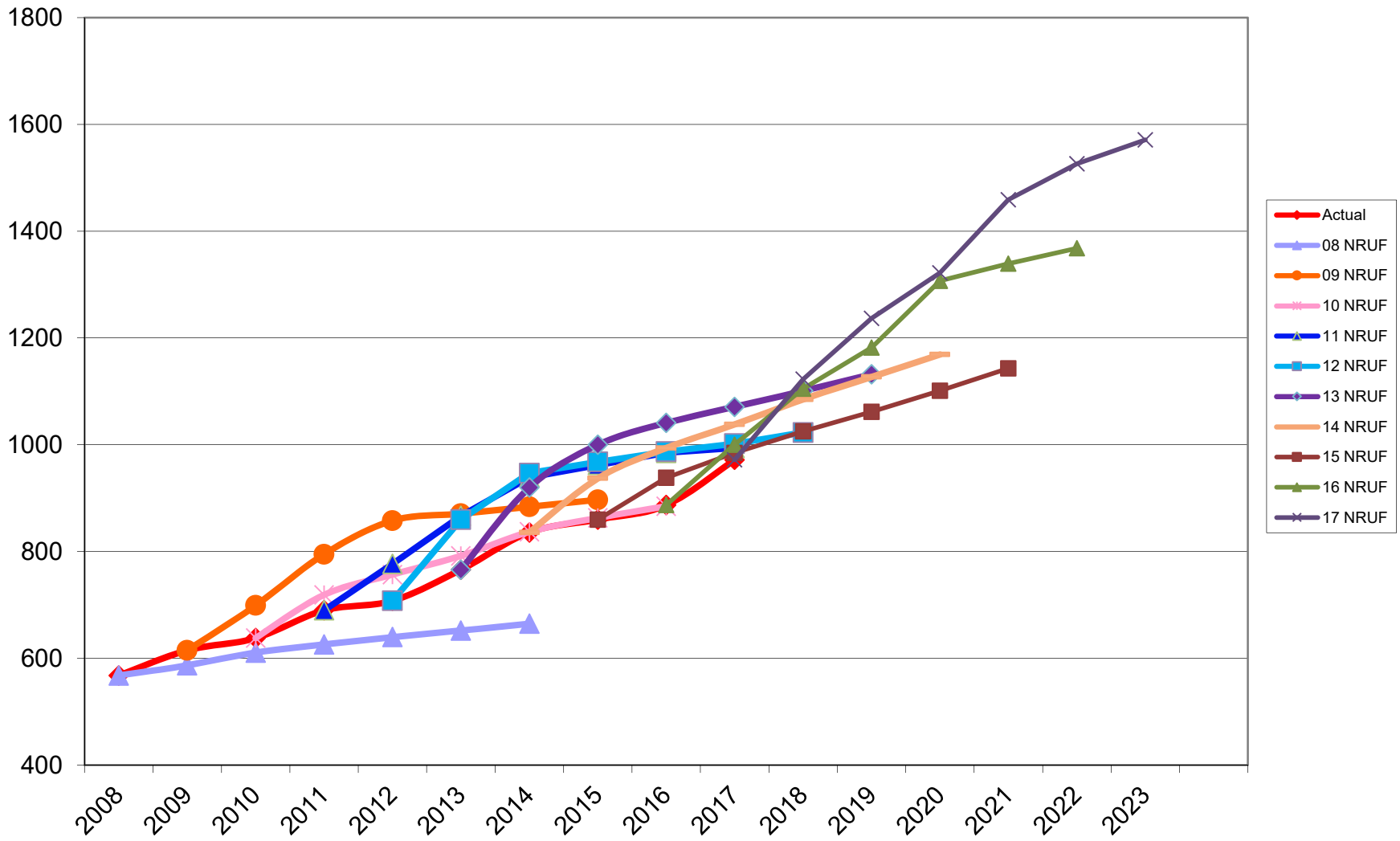


January 2017 G-NRUF Aggregate Results

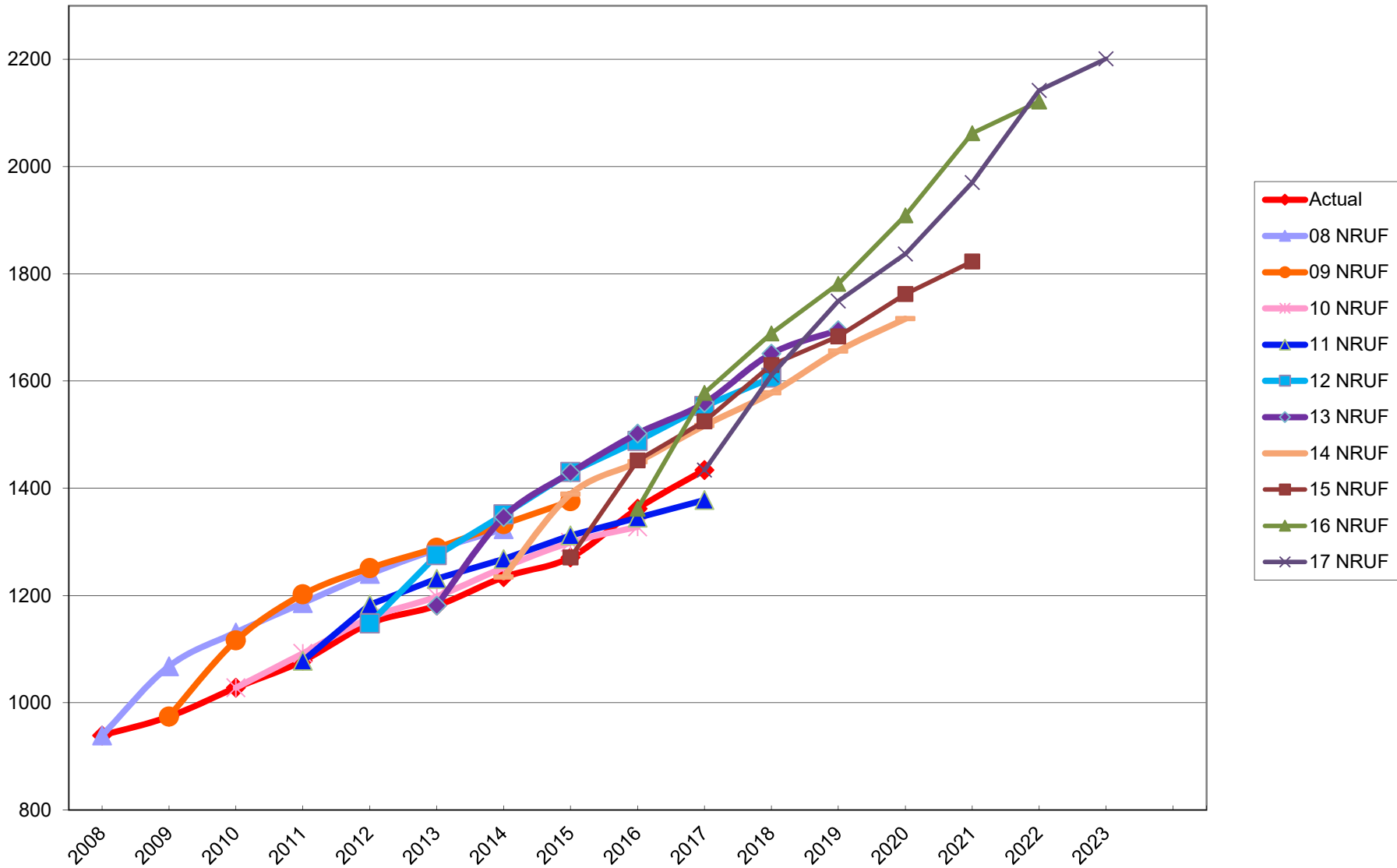
Attachment 1

	January 1, 2017																	
<b>NPAs</b>	204-431	226-519-548	236-250-604-778	249-705	289-365-905	306-639	343-613	403-587-780-825	416-437-647	418-581	438-514	450-579	506	709	782-902	807	819-873	867
New Entrants iaw PNs/NOCs/ Decisions	0	7	0	0	0	0	0	10	0	3	0	0	3	2	9	0	0	0
Initial Code iaw PNs/NOCs/ Decisions	0	4	0	0	0	0	0	7	0	5	0	0	4	0	3	0	0	0
Protected	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N11 Service Codes	16	24	32	16	24	16	16	32	24	16	16	16	8	8	16	8	16	8
Special Use Codes (555, 950 & 976)	6	7	12	5	9	6	5	12	8	5	5	6	3	3	6	2	5	3
Industry Plant Test Codes	3	6	8	4	6	4	4	8	6	4	4	4	2	2	4	2	4	2
Home NPAs NXX Codes	4	9	15	4	9	4	4	16	9	4	4	4	1	1	4	1	4	1
Neighbour NPAs NXX Codes	2	6	0	18	27	6	16	1	3	6	4	8	4	3	2	4	18	6
Future NPAs NXX Codes	8	9	0	18	12	12	20	1	18	16	16	24	10	9	6	16	18	21
Limited Availability (USA 7D Problem)	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	4	0
911 Misdial Codes (912, 914 & 915)	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	3	0	3
Special 7 Digit Dialing Codes (310, 610 & 810)	5	6	10	5	8	5	5	8	8	5	5	5	2	2	5	2	5	3
Relief NPA	0	0	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
Unforecasted Demand	3	0	7	0	7	3	7	0	6	0	6	5	0	0	0	2	2	2
<b>Total</b>	<b>47</b>	<b>78</b>	<b>90</b>	<b>70</b>	<b>102</b>	<b>56</b>	<b>77</b>	<b>95</b>	<b>85</b>	<b>64</b>	<b>60</b>	<b>72</b>	<b>41</b>	<b>33</b>	<b>55</b>	<b>41</b>	<b>76</b>	<b>49</b>

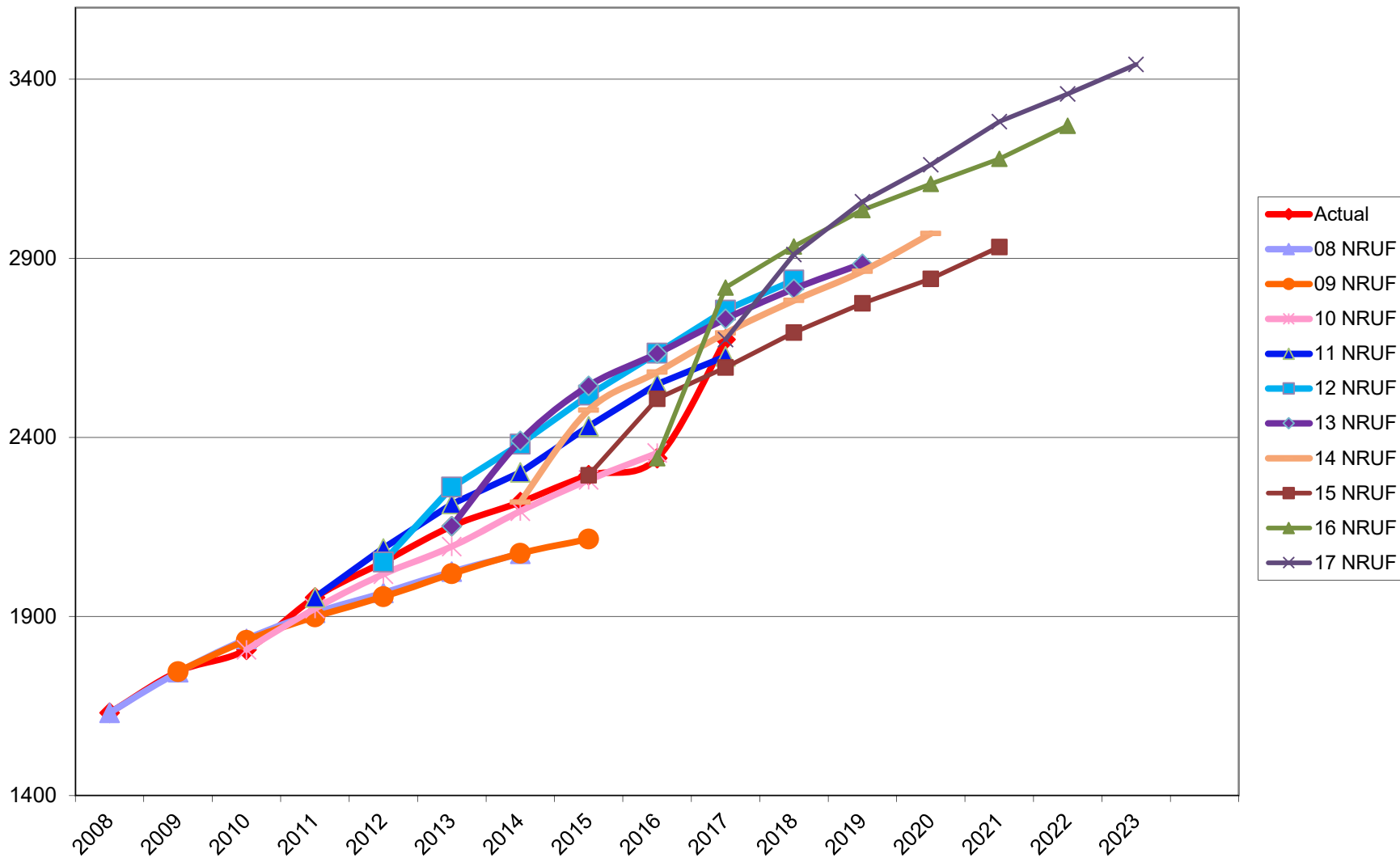
**NPA 204/431 Manitoba**



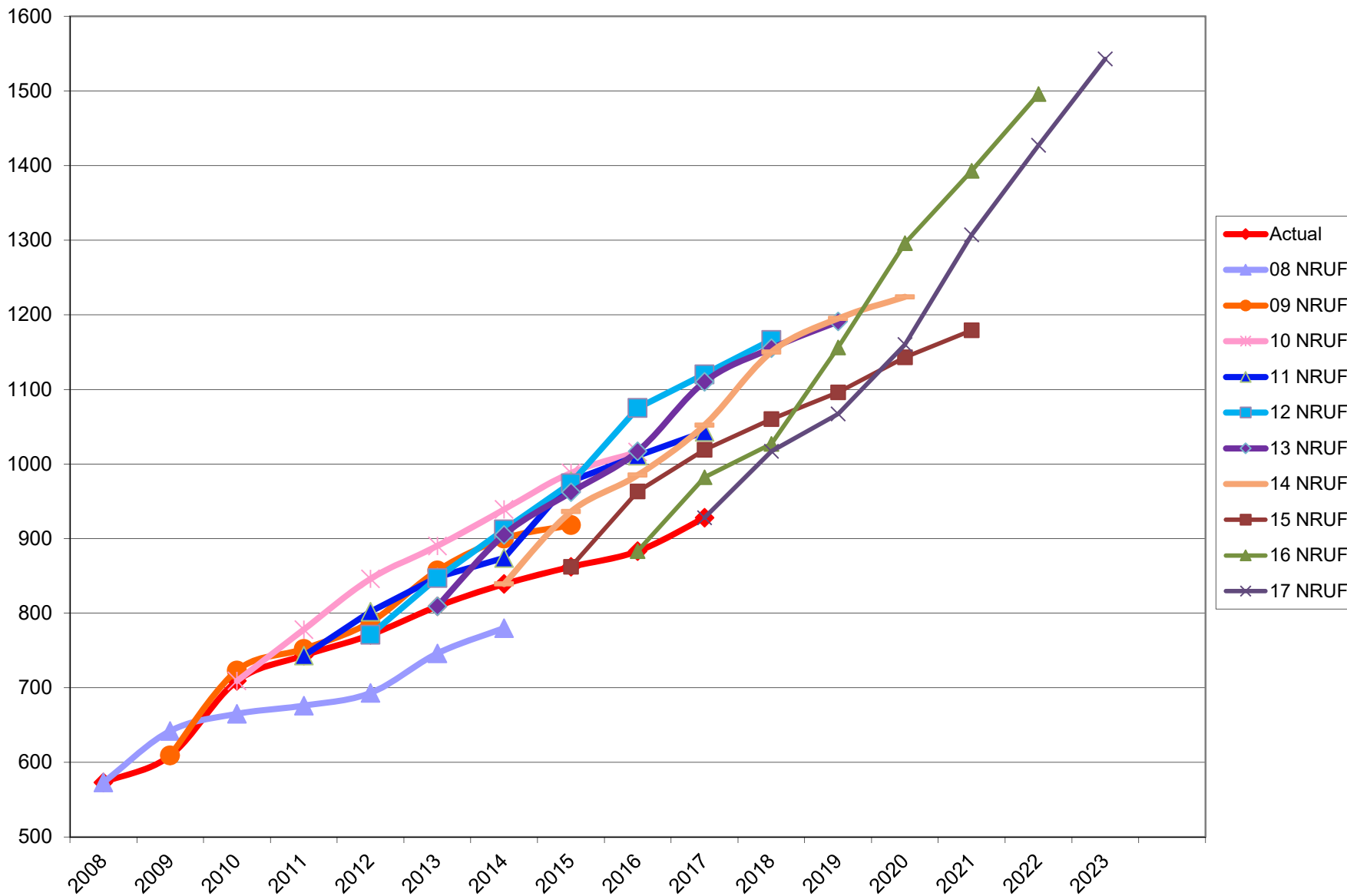
**NPA 226/519/548 Ontario**



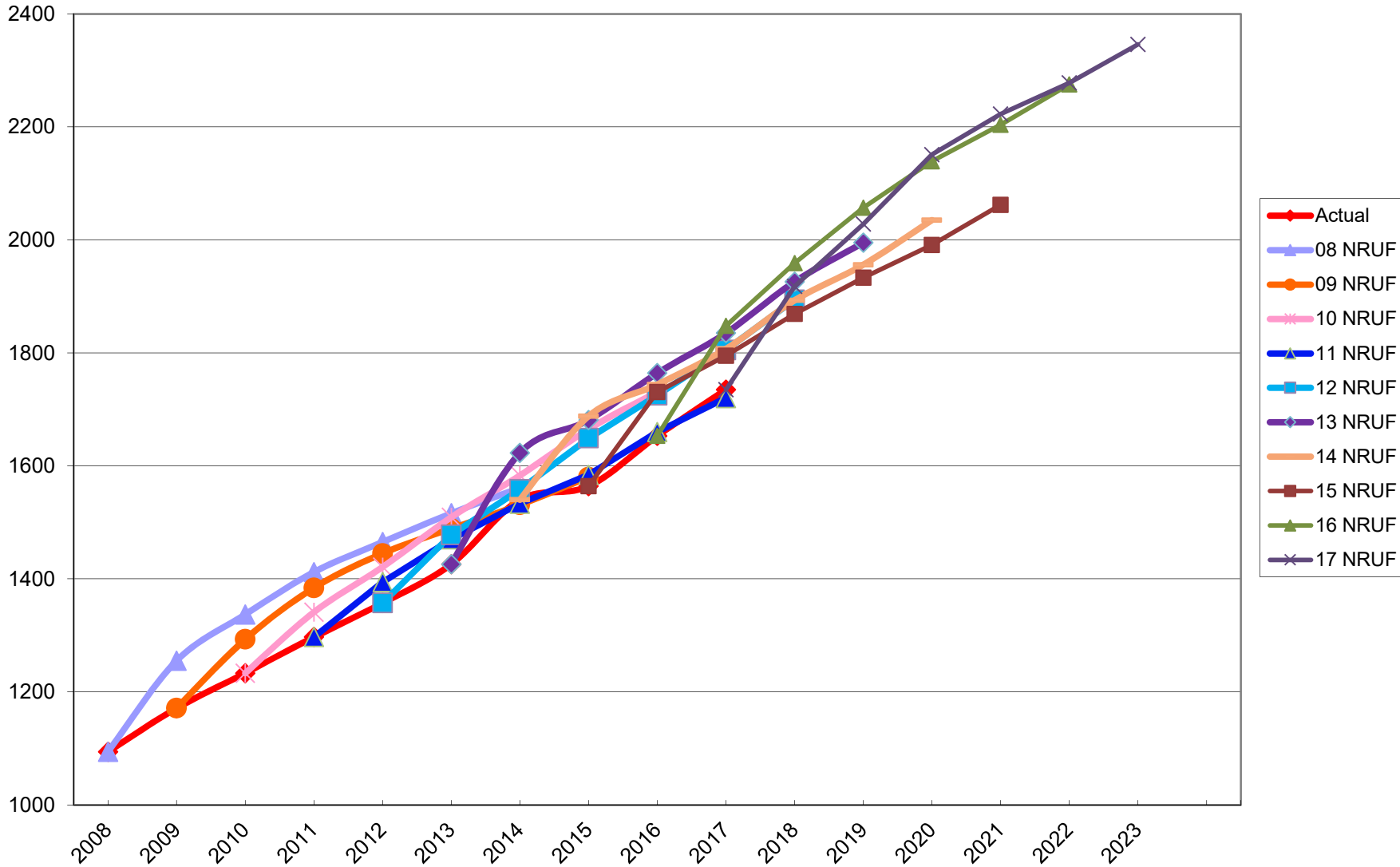
**NPA 236/250/604/778 British Columbia**



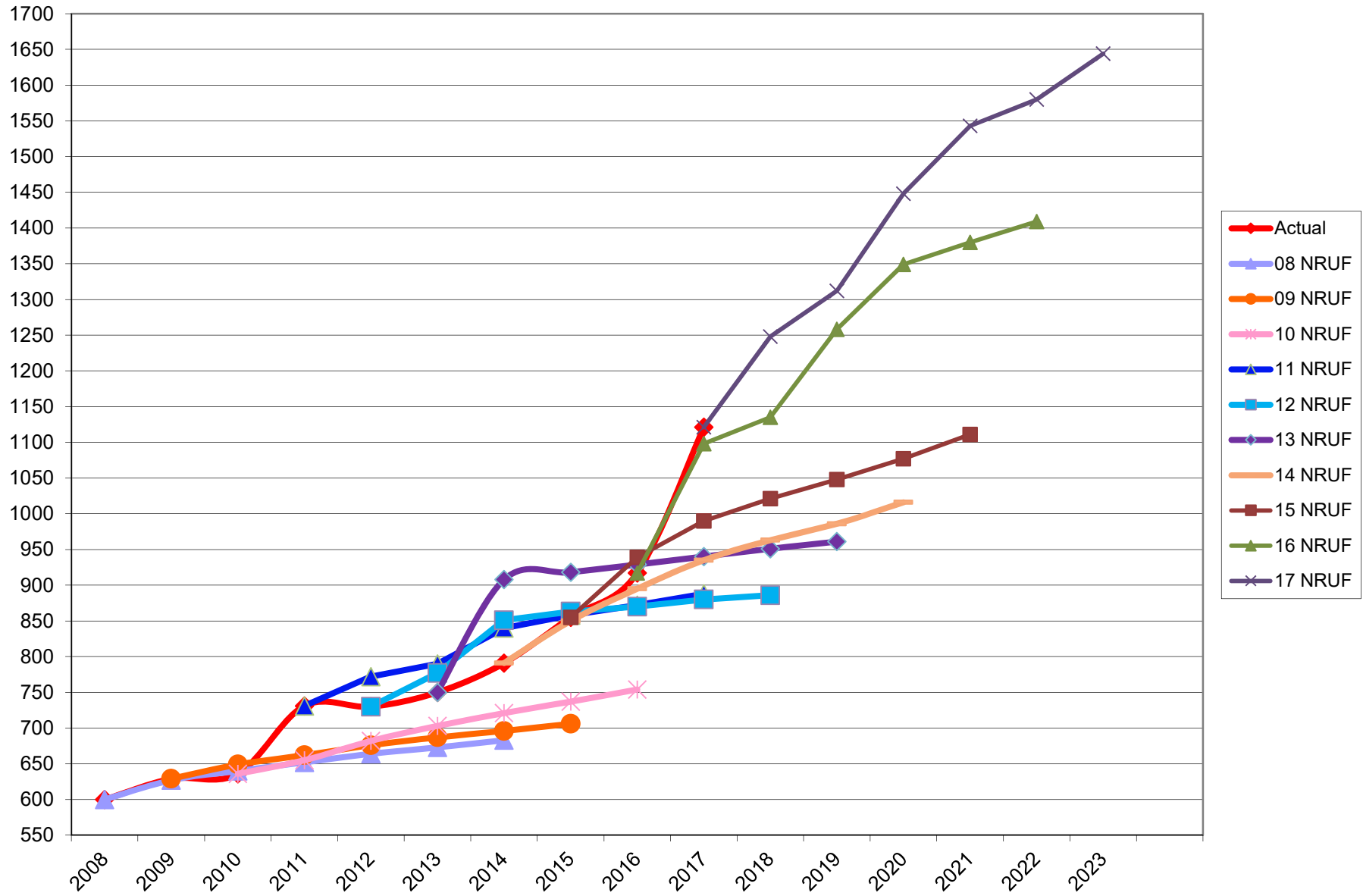
### NPA 249/705 Ontario



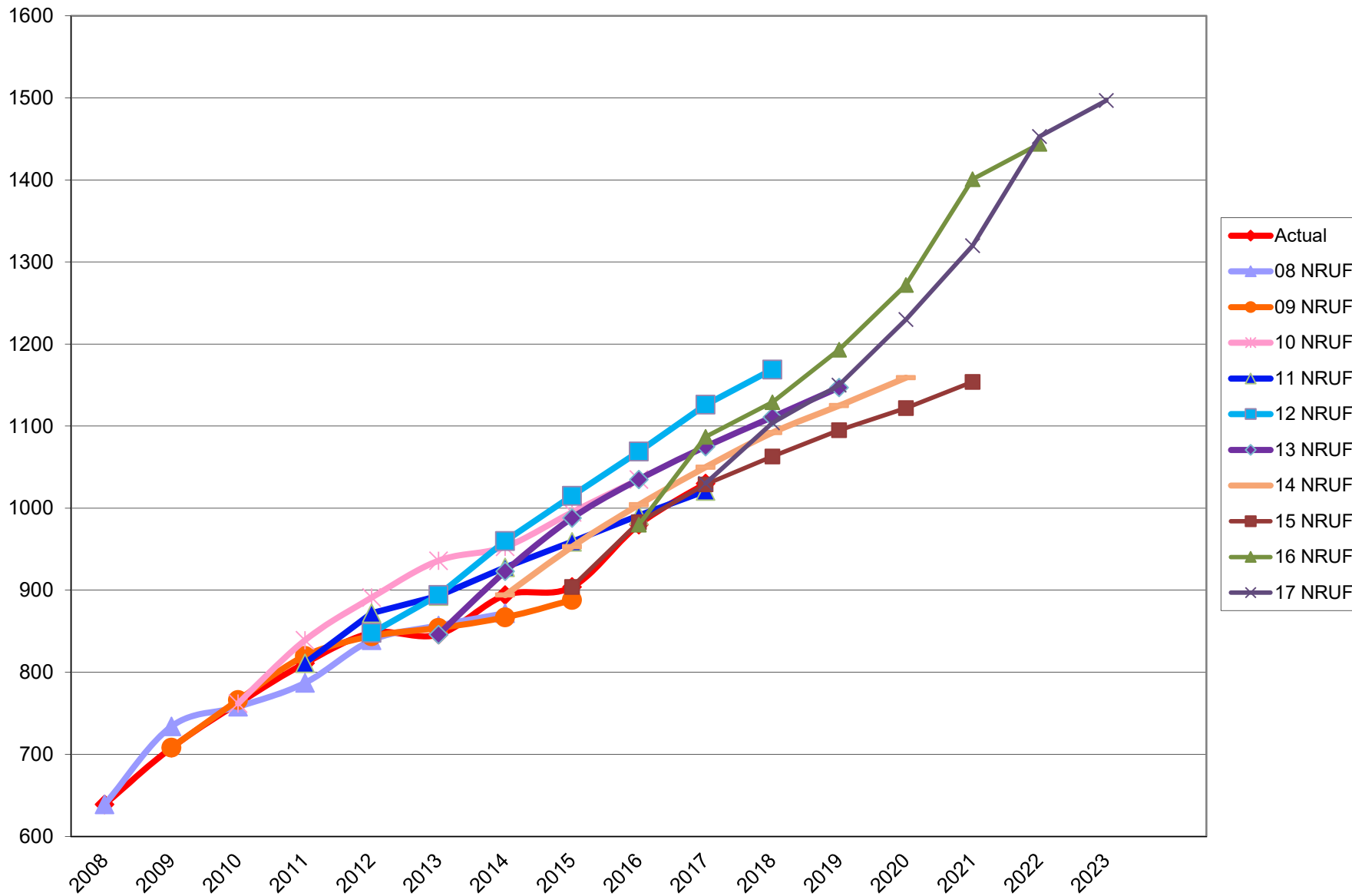
**NPA 289/365/905 Ontario**



### NPA 306/639 Saskatchewan

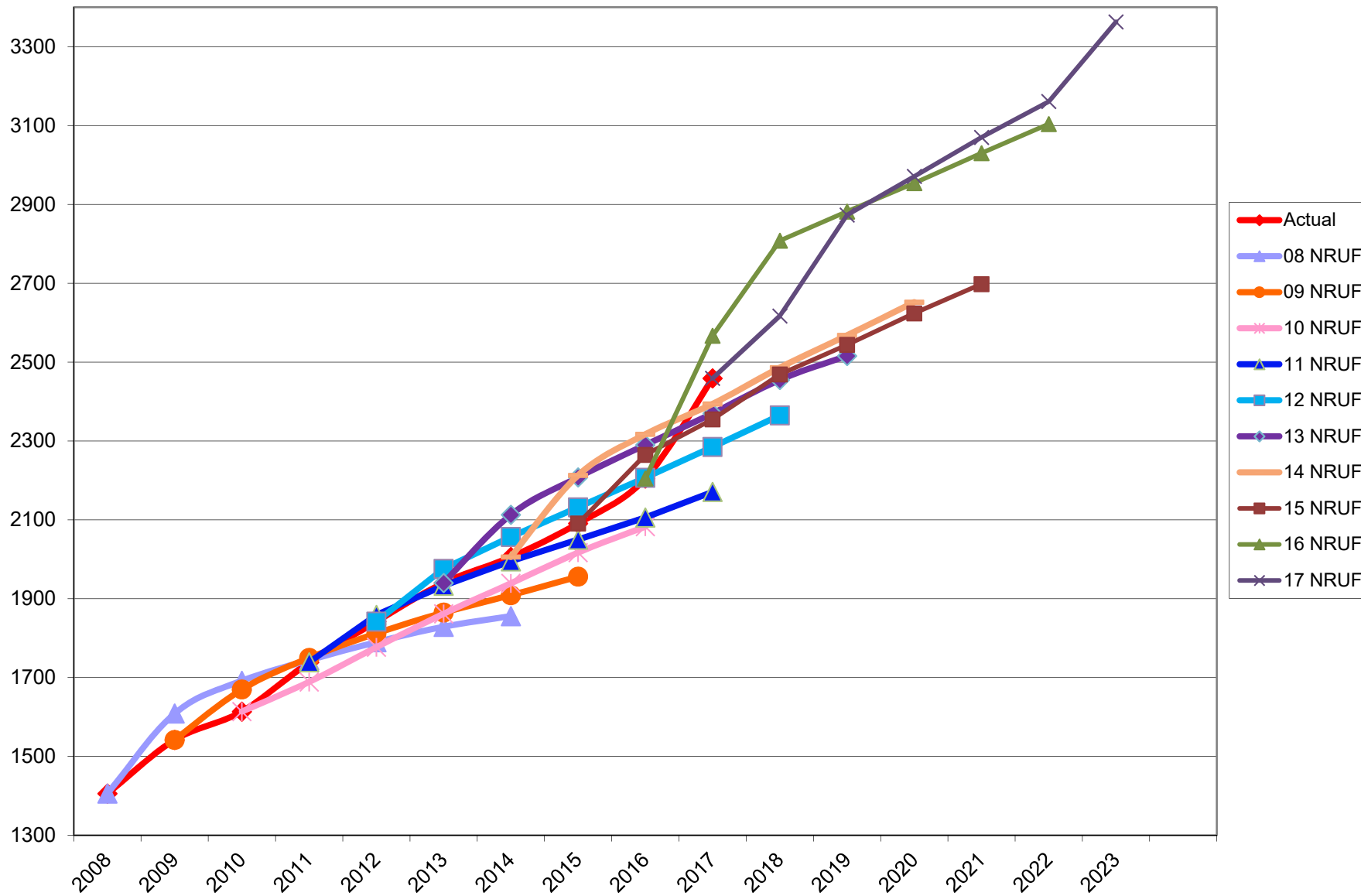


### NPA 343/613 Ontario

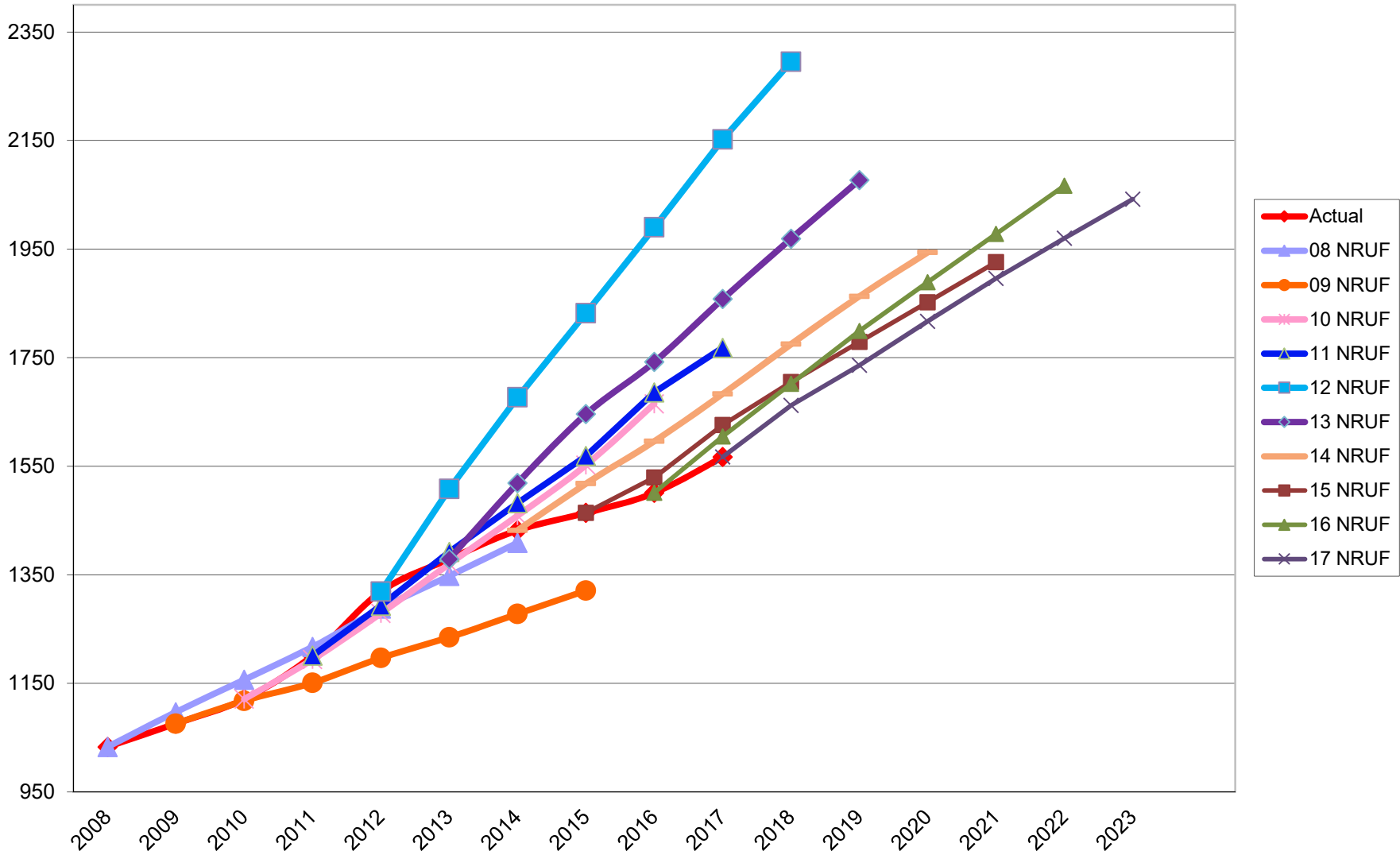




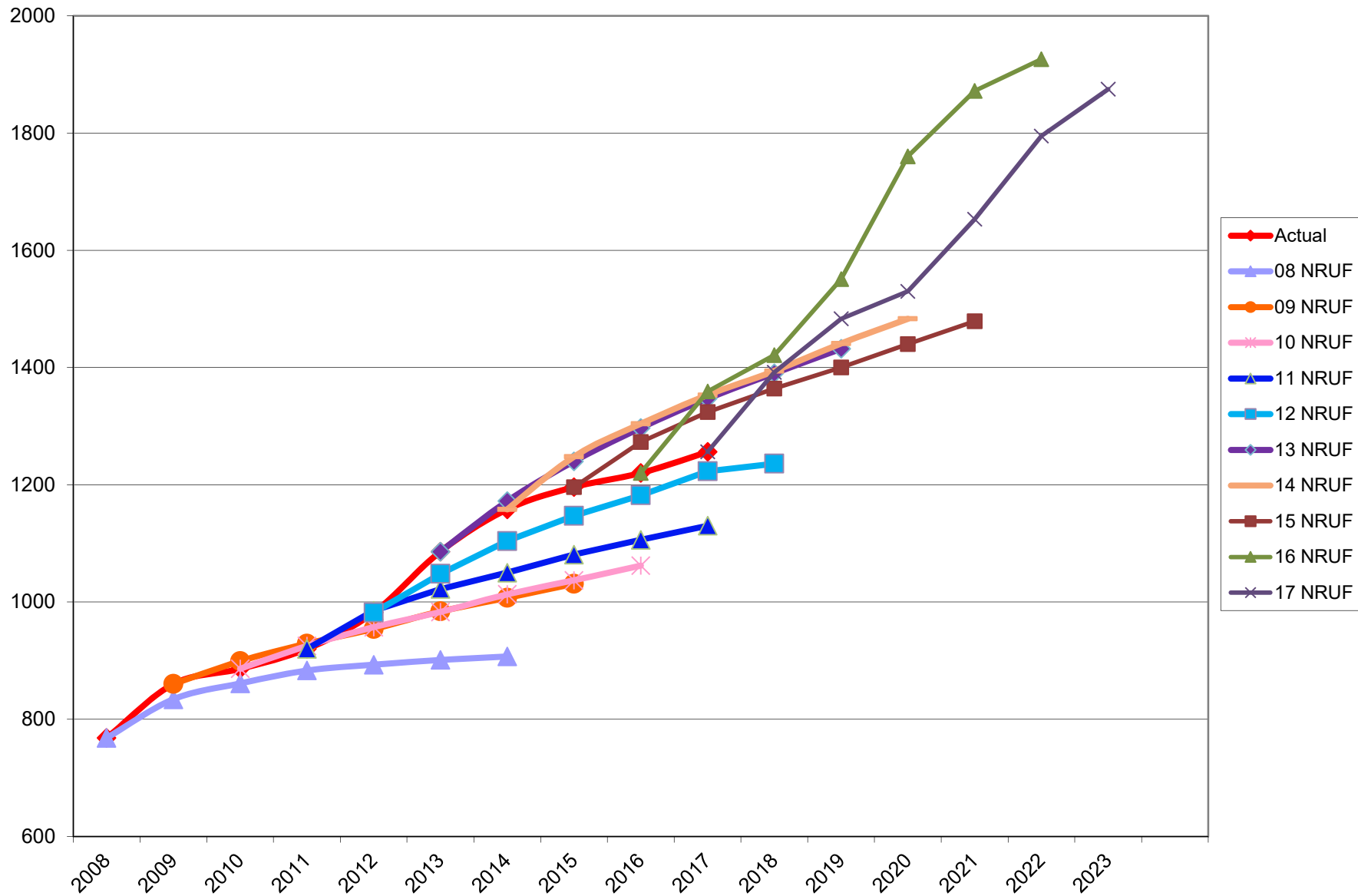
**NPA 403/587/780/825 Alberta**



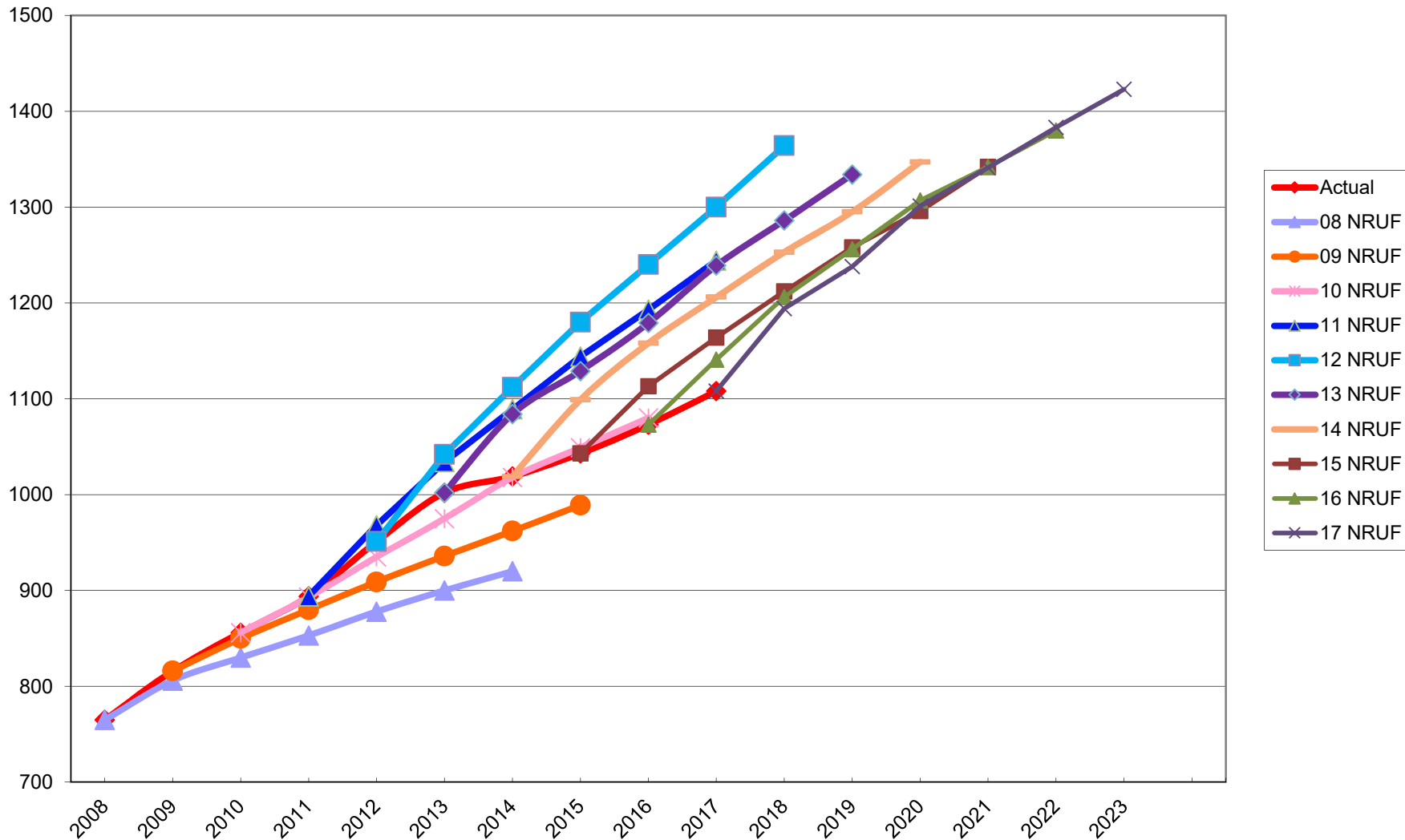
**NPA 416/437/647 Ontario**



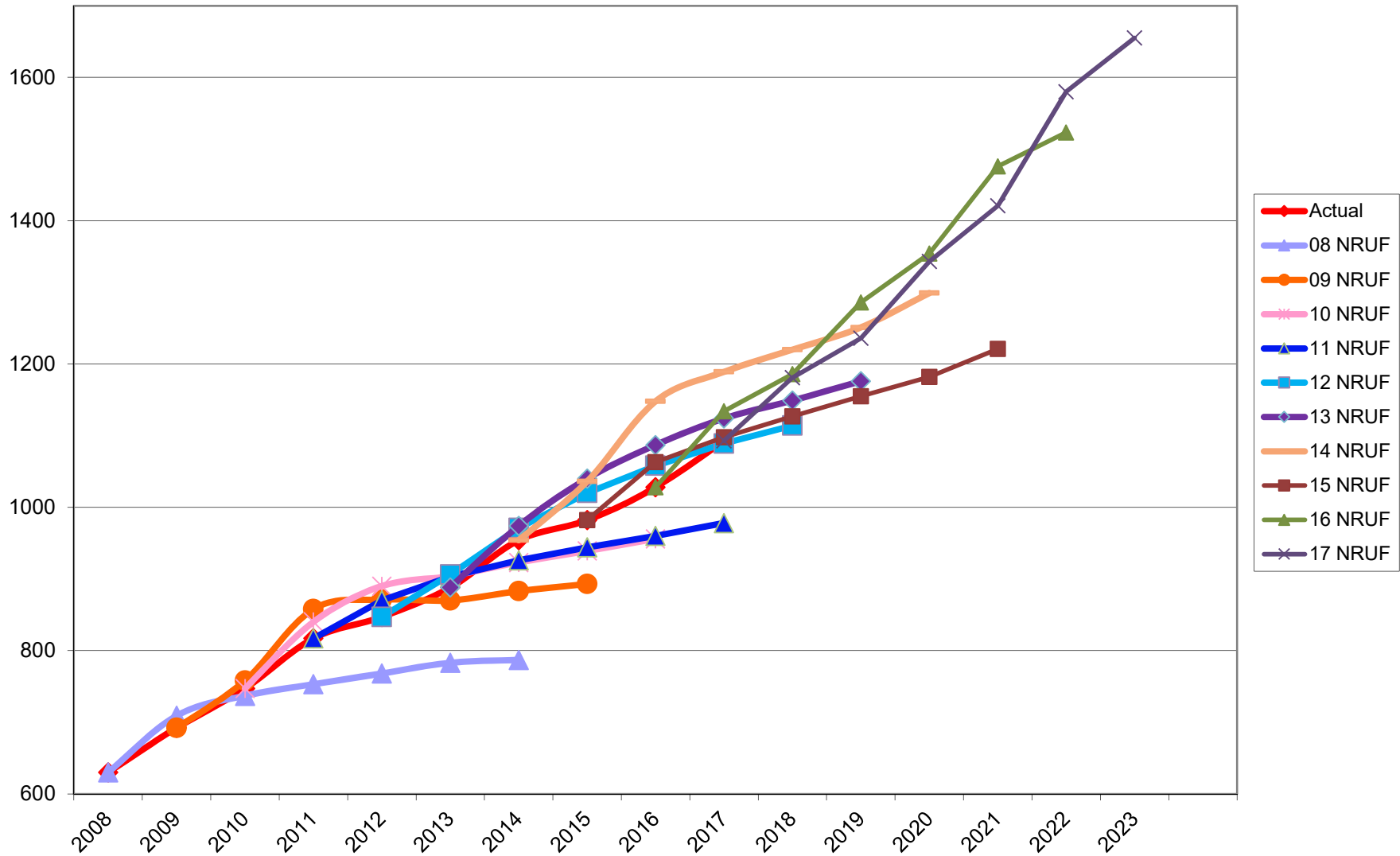
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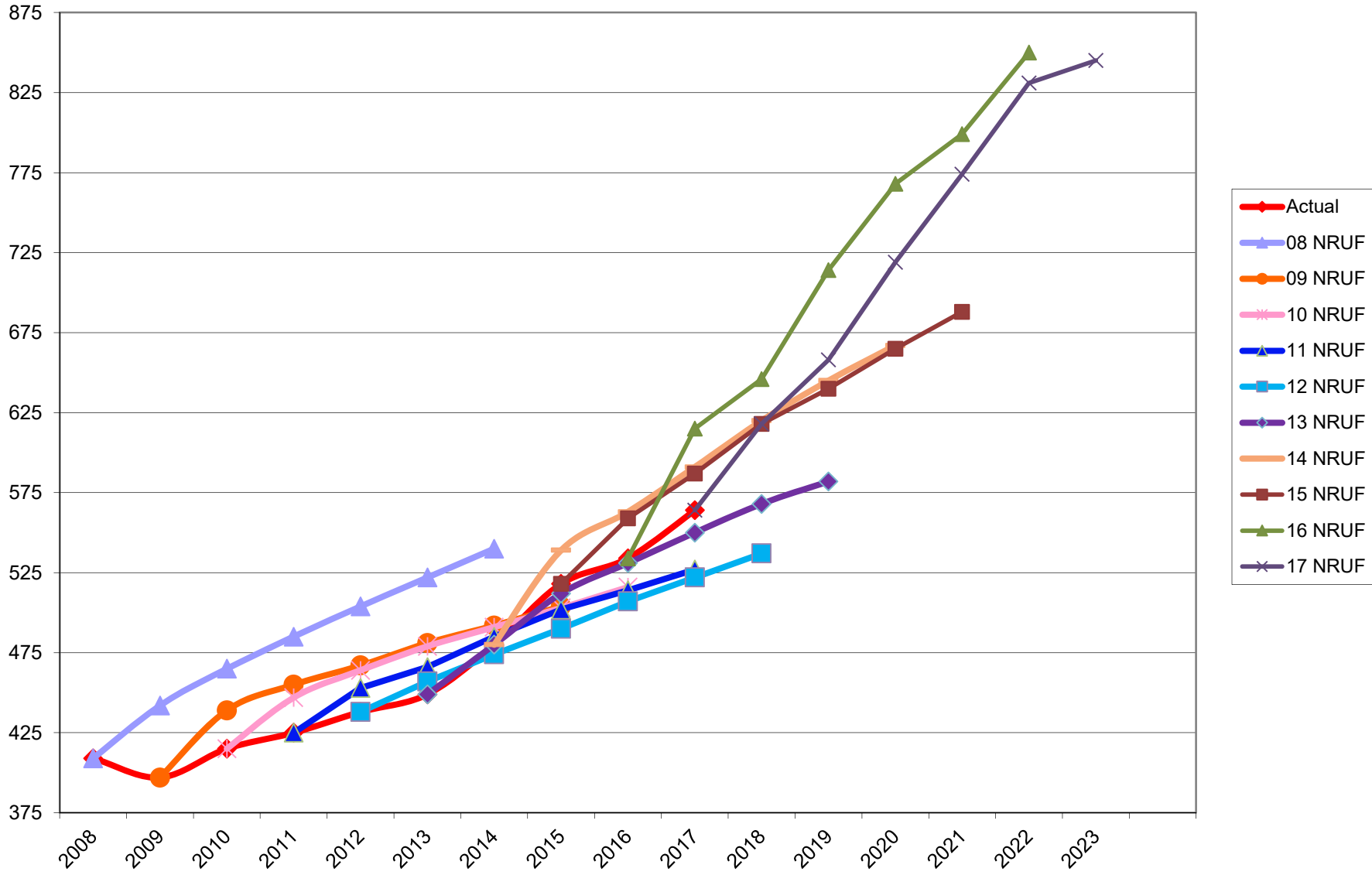
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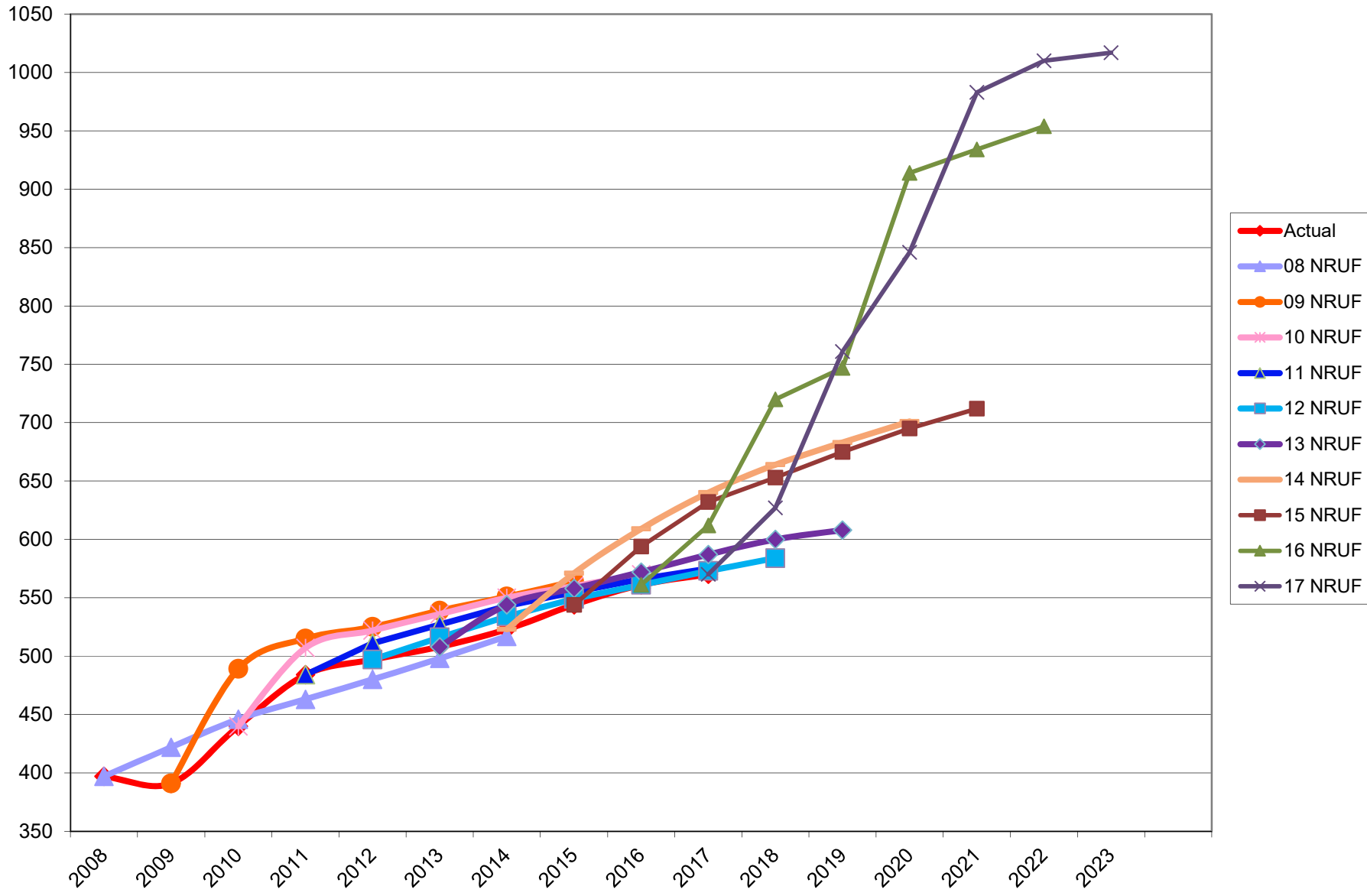
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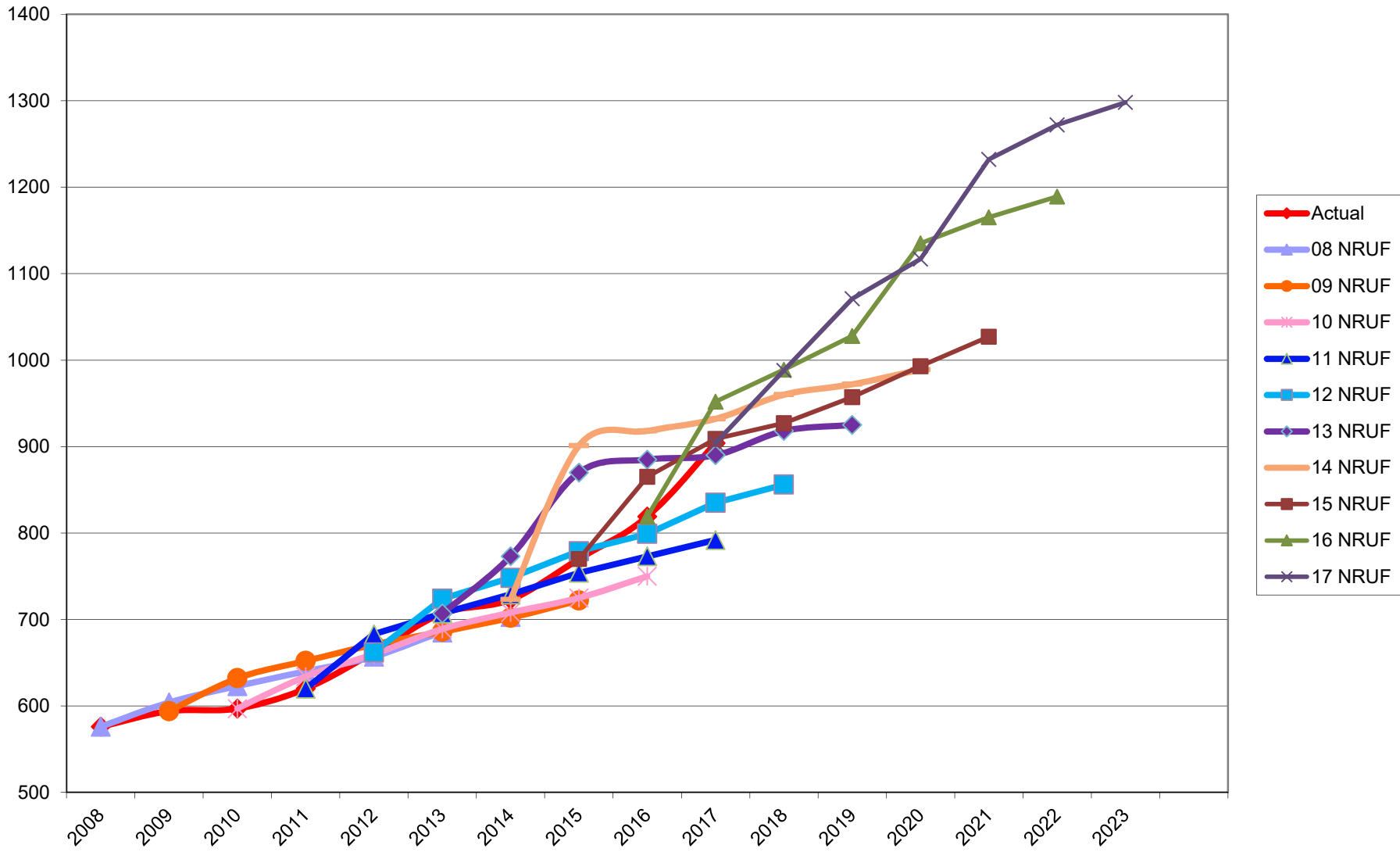
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### NPA 709 Newfoundland and Labrador

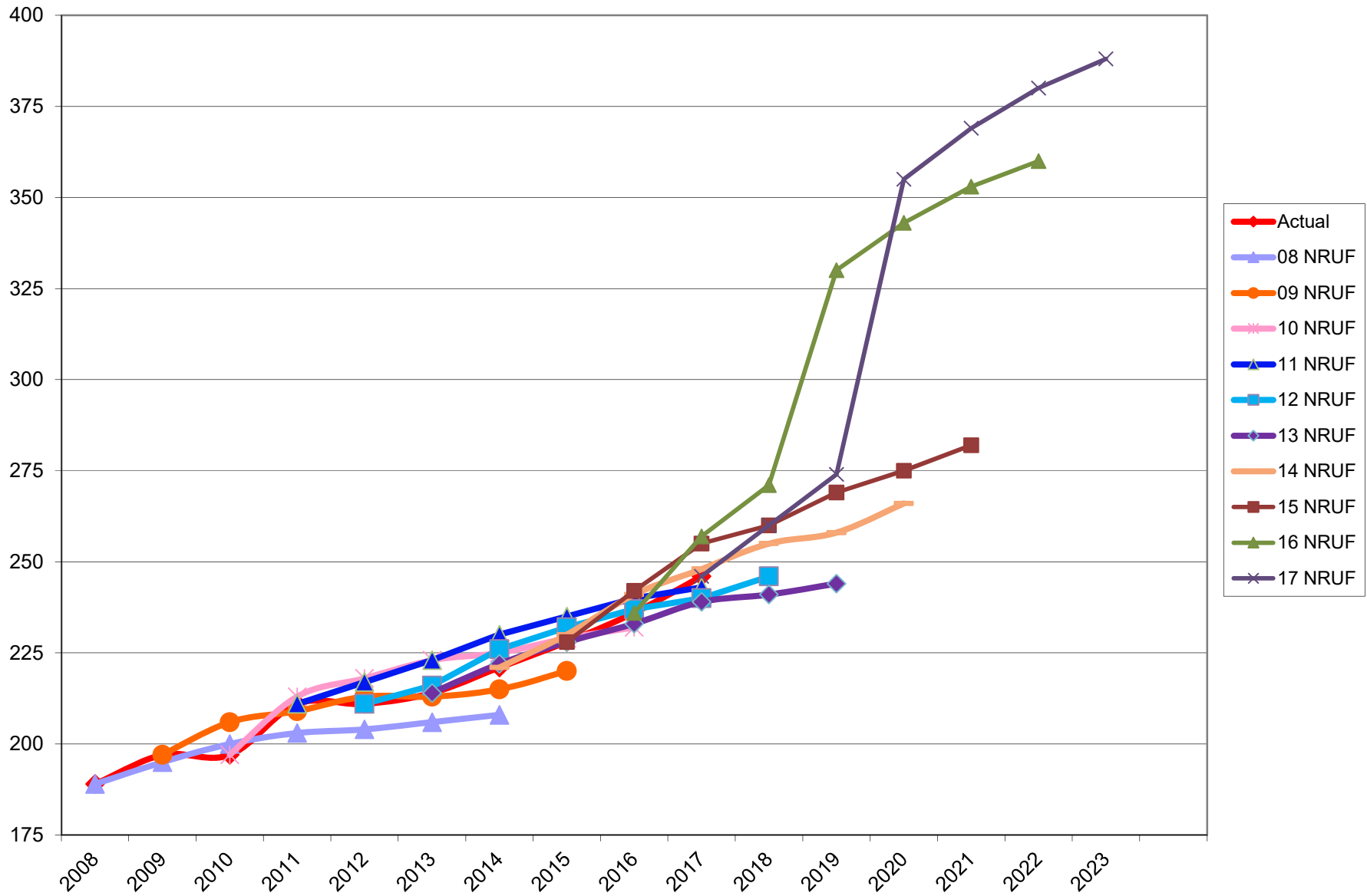


**NPA 782-902 Nova Scotia-Prince Edward Island**

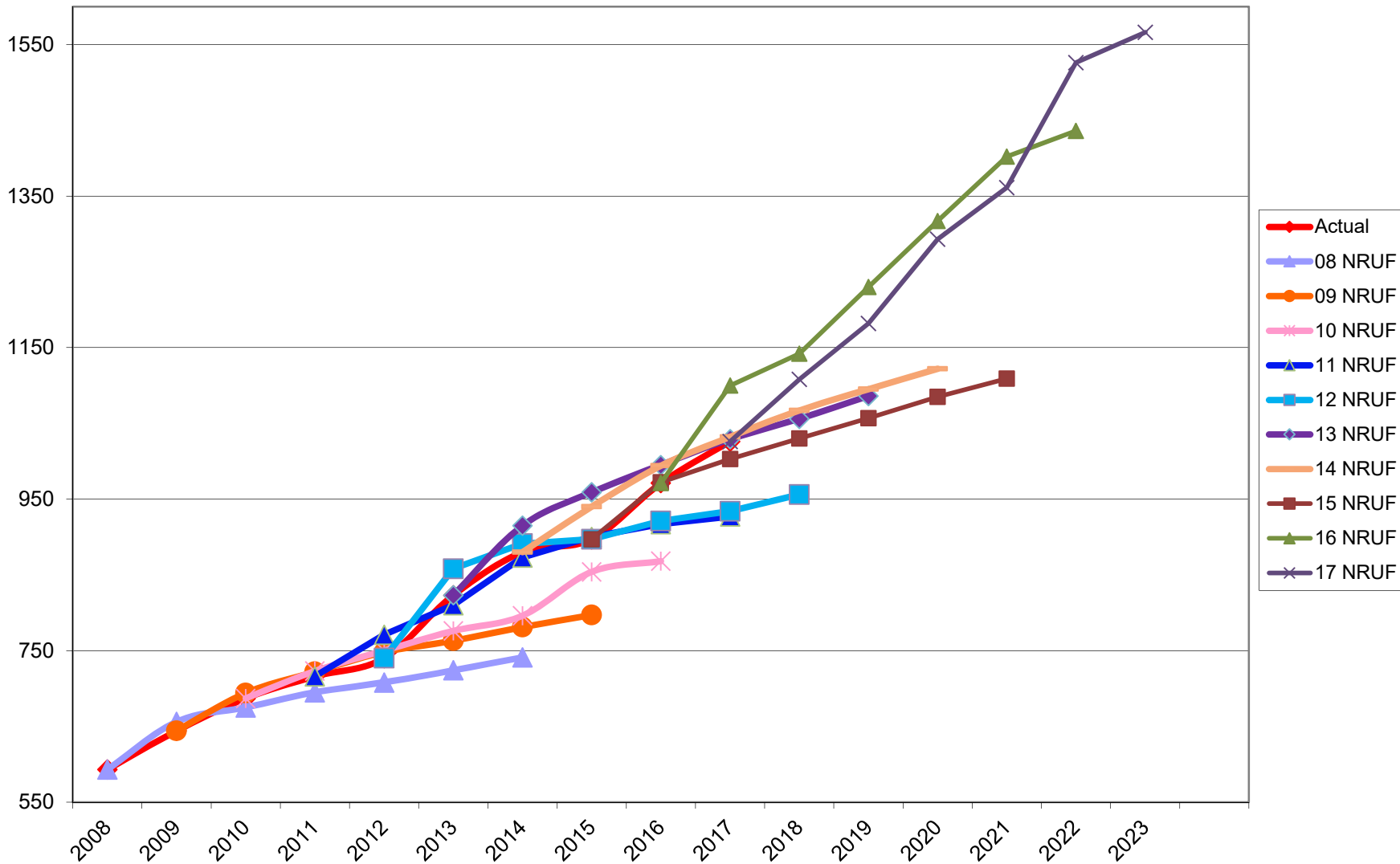




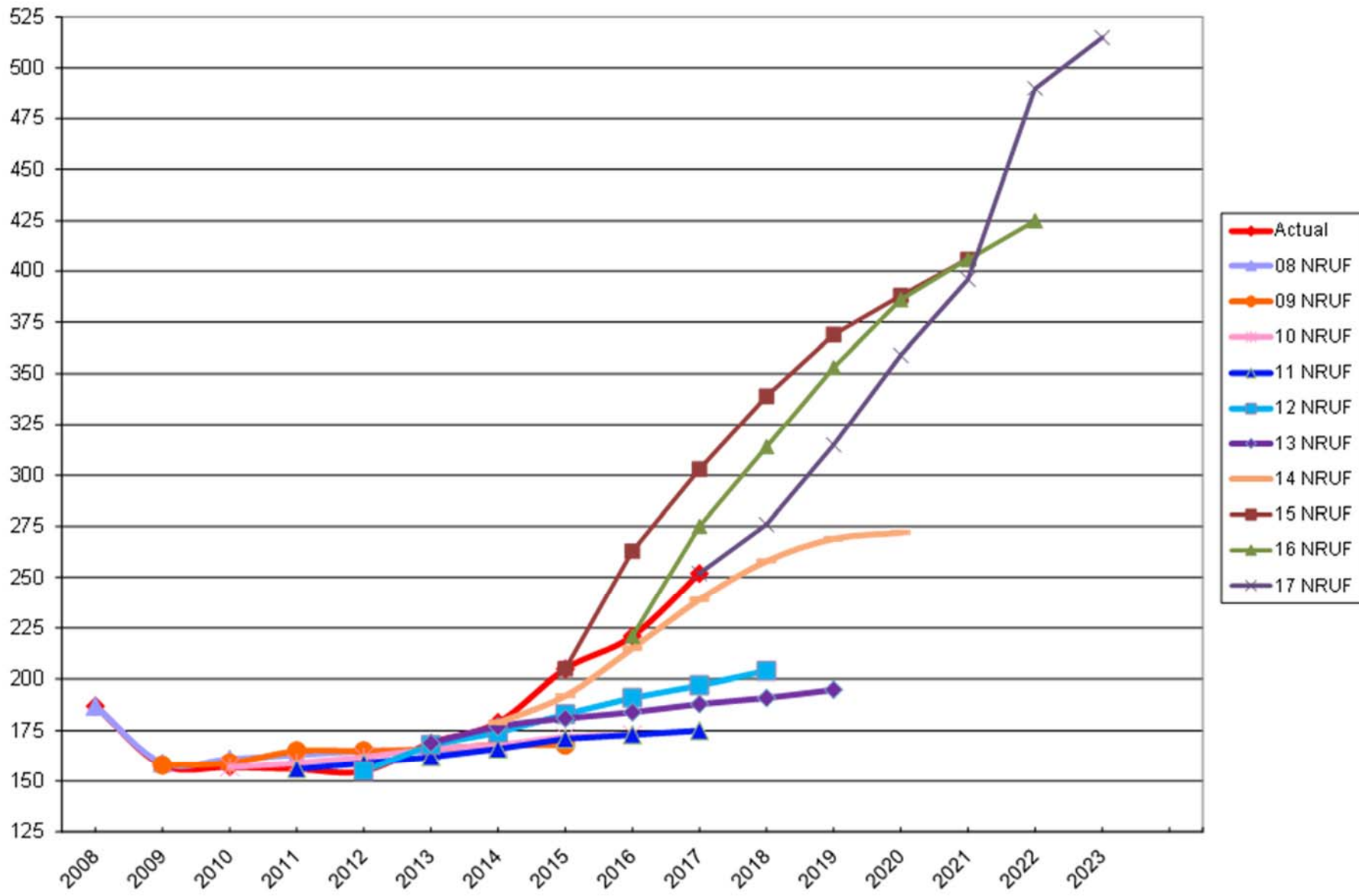
### NPA 807 Ontario



**NPA 819/873 Quebec**



NPA 867 Northwest Territories-Nunavut-Yukon



## Canadian Steering Committee on Numbering

25 October 2016

TRANSMITTED ELECTRONICALLY

Glen Brown  
Project Manager  
Canadian Numbering Administrator (CNA)  
Leidos Canada Inc.  
60 Queen Street, Suite 1516  
Ottawa, Ontario K1P 5Y7

**Subject: CSCN Direction to Canadian Numbering Administrator (CNA) re the 2017 Numbering Resource Utilization Forecast (2017 NRUF) Methodology and Assumptions**

On 25 October 2016, the Canadian Steering Committee on Numbering (CSCN) discussed and agreed to the direction for the CNA with respect to the 2017 NRUF Methodology and Assumptions.

The attached document contains the direction titled "CSCN Direction to CNA re the 2017 NRUF Methodology and Assumptions, 25 October 2016".

Sincerely,

***Original signed by***

Glen Brown  
CSCN Chair

c.c.: Joseph Cabrera – CRTC  
Valerie Plaskacz – CRTC

Attachment

**CSCN Direction to CNA re the 2017 NRUF Methodology and Assumptions  
25 October 2016**

The CSCN submits the following methodology and assumptions to the CNA for the 2017 Numbering Resource Utilization Forecast (NRUF).

1. If there is a discrepancy between the CNA records and those submitted by the CO Code Holder with respect to the quantities of actual CO Codes assigned and reserved as of 1 January 2017, the CNA will attempt to rectify the discrepancy. However, if the discrepancy cannot be resolved, the quantity of CO Codes appearing in the CNA's records will be used. The CO Code Holder and the CNA should attempt to resolve the discrepancy before the next NRUF is conducted.

This problem has generally occurred when a CO Code:

- is still "being recovered" (i.e., a Part 3 Form has not been issued but the CO Code Holder believes the CNA has recovered the CO Code);
  - is a Plant Test Code (i.e., legacy, NPA Relief, industry plant test codes and Appendix D temporary plant test codes); or
  - has been assigned and a Part 4 Form has not been received. In the past some CO Code Holders have not counted assigned codes.
2. CRTC staff instructed the CNA to reserve a number of CO Codes to be used for new unknown entrants, new technologies and other unforecasted demand. The CSCN recommends that the quantities identified by CRTC staff should be carried forward to the 2017 NRUF, except in NPAs where pools of CO Codes have been established for initial CO Code assignments, in which case the allowance for unforecasted demand should only be included for forecast years following the dissolution of the pool for initial CO Code assignments as noted in the table below.

CRTC Staff Allowance for Unforecasted Demand		Relief year (est. = estimated)	Allowance to be excluded from forecasted total quantities prior to the year below (= year after the dissolution of the pool, which is 2 years after relief)	CRTC Telecom Decision or Notice establishing pool of CO Codes for initial CO Code assignments
NPA	Quantity of CO Codes			
204/431	3	n/a	-	-
226/519	5	2016	2019	Notice 2012-655
236/250/604/778	7	est. 2020	TBD	Notice 2016-208
249/705	5	n/a	-	-
289/365/905	7	n/a	-	-
306/639	3	n/a	-	-
343/613	7	n/a	-	-
403/780/587	7	2016	2019	Notice 2012-656
416/437/647	6	n/a	-	-
418/581	3	est. 2018	TBD	Notice 2016-207
438/514	6	n/a	-	-
450/579	5	n/a	-	-

CRTC Staff Allowance for Unforecasted Demand		Relief year (est. = estimated)	Allowance to be excluded from forecasted total quantities prior to the year below (= year after the dissolution of the pool, which is 2 years after relief)	CRTC Telecom Decision or Notice establishing pool of CO Codes for initial CO Code assignments
NPA	Quantity of CO Codes			
506	3	est. 2019	TBD	Notice 2016-206
709	2	est. 2018	TBD	Notice 2016-205
782/902	3	n/a	-	-
807	2	n/a	-	-
819/873	2	n/a	-	-
867	2	n/a	-	-

The quantities of CO Codes in the above table should be carried forward for the 20-year study period with no growth.

3. Where the CRTC has ordered or an RPC has recommended that quantities of CO Codes be set aside for a specified period of time for assignment to initial CO Code Applicants for a 2-year period after implementation of an Overlay, the CNA shall add such quantities to the actual quantity of CO Codes for 1 January of the current year and carry them forward in the forecasts until the Relief Date, since these set-aside CO Codes are unassignable from the date of the Decision until immediately prior to the Relief Date, after which they become assignable (with limitations). The CNA should exclude such set-aside CO Codes from the calculation of annual growth rates.
4. Future projections beyond the six year forecast period will be calculated using linear extrapolation and the average annual growth in quantity of CO Codes for the six year forecast period, excluding any extraordinary factors such as returns or reclamations of large quantities of CO Codes and Codes identified in item 3 above that would create an unreasonable projected future growth rate. Where the CNA believes, based on its analysis of past growth and NRUF forecast data for an NPA, that the six-year forecast average annual growth may not be the best methodology for that NPA for projecting growth beyond the six-year forecast period, the CNA shall advise the CSCN as to the alternative method it proposes to use. The six-year average growth of CO Codes per year shall be calculated as follows and rounded to one decimal point at a maximum (e.g., 5.14 rounds down to 5.1; 5.15 rounds up to 5.2):

$$\text{6 Year Average Growth of CO Codes per Year} = \frac{[(\text{Forecasted Quantity of CO Codes in year six}) - (\text{Actual Quantity in 1 January of Current Year})]}{6}$$

When extending the forecast from 7 to 20 years, the CNA should use the six year forecast average annual growth, calculated to one decimal point, to develop the 1 January quantity of CO Codes for each year (e.g., in year seven  $100+5.4=105.4$  rounds up to 106; in year eight  $105.4+5.4=110.8$  rounds up to 111).

5. The CNA shall provide for each NPA the total quantity of actual and forecasted CO Codes and a breakdown of the quantity of "Unassignable CO Codes" as per

- section 3.7 of the Commission-approved Canadian Central Office Code (NXX) Assignment Guideline, or as otherwise directed in writing by the CRTC when the draft aggregate results are released, and in the subsequent 2017 NRUF Report to the CSCN after the aggregate results are finalized.
6. The “Administrative Codes” and “Stranded Codes” shall not be used in the calculation of the average annual future growth used for the 7 to 20 year projection. At this time, there are no “Stranded Codes”.
  7. The CNA shall not add or include any demand for CO Codes for proposed CLECs that did not submit NRUF forecasts, other than the demand that is already allowed for in the quantity of CO Codes for unforecasted demand specified by CRTC staff.
  8. For the purpose of the NRUF the CNA should assume that the Overlay Method will be used for future NPA Reliefs unless CRTC staff advises otherwise.
  9. With respect to NPAs that are due to exhaust approximately in the 2037 timeframe, the CNA should exercise its best judgment in finalizing the forecast for those NPAs.