

**Report for January 2023 G- & R-NRUF – Canadian NPAs
to the
Canadian Steering Committee on Numbering (CSCN)**

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1. Purpose of G- & R-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 Central Office (CO) Code Holders to submit actual and forecast annual data regarding their current and future use of CO Codes to the Canadian Numbering Administrator (CNA) on an annual basis.

In accordance with the *Canadian Numbering Resource Utilization Forecast (C-NRUF) Guideline* (the Guideline), approved by the Canadian Radio-television and Telecommunications Commission (CRTC) in Telecom Decision CRTC 2015-166 dated 29 April 2015:

When an NPA is entering the timeframe for NPA Relief Planning (e.g., within or about 72 months before the Projected Exhaust Date), an initial R-NRUF is conducted to obtain actual and forecast annual data at the Exchange Area level of detail. The purpose of the initial R-NRUF is to validate the Projected Exhaust Date for an exhausting NPA, and to provide the CNA with detailed information to be used to identify a potential Relief Date and to prepare the Initial Planning Document as outlined in the *Canadian NPA Relief Planning Guideline*. Typically, the initial R-NRUF will utilize Format 2 in Appendix A. In general, the CNA will conduct the initial R-NRUF when needed; however, the CNA should attempt to choose dates for the initial and subsequent R-NRUFs that will coincide with the annual G-NRUF and mid-year R/S-NRUF dates (e.g., as of January 1 and July 1 each year).

Subsequent R-NRUFs will be conducted semi-annually to monitor CO Code forecast changes prior to implementing relief. These R-NRUFs shall be conducted until three months of when relief is implemented, or until they are replaced by S-NRUFs or J-NRUFs.

Based on the January 2023 NRUF results, the CNA determined that the following NPAs continue to be in the relief planning window:

- 226/382/519/548 (Relief Date 17 June 2023);
- 236/250/604/672/778;
- 416/437/647; and
- 506

NPAs 249/683/705, 289/365/742/905, 343/613/753, 368/403/587/780/825, 367/418/581, 782/902 and 709 have entered the 6-year relief planning window and, on 29 March 2023, the CNA declared that NPA 709 is in a Jeopardy Condition.

On 11 June 2021, CRTC staff agreed that future R-NRUFs should be performed at the area code level of detail where multiple area codes serve the same geographic area.

On 13 April 2023, CRTC staff agreed that in NPA 709 Jeopardy measures should be put in place, which will require that the CNA:

- Freeze all central office code assignments in Area Code 709/879 based on the January 2023 G-NRUF carrier submissions to the 1 January 2024 forecast quantities; and,

- Conduct Area Code 709/879 Jeopardy Numbering Resource Utilization Forecasts (J-NRUFs) at the NPA level of detail.

The CNA has prepared this report in accordance with the Guideline.

Included as attachments to this report are:

- 2023 G- & R-NRUF Aggregate Results and the Quantity of CNA CO Codes as of 1 January 2023;
- Historical January NRUF Graphs for Canadian NPAs; and,
- CSCN Letter dated 12 October 2022 providing direction to the CNA re: the 2023 Numbering Resource Utilization Forecast (2022 NRUF) Methodology and Assumptions.

2. High Level Summary

The results from the January 2023 G- & R-NRUF show significant changes in several NPAs compared to the January 2022 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.
- 2) Some established TSPs have adjusted their forecast to meet the demand created by new technologies and new services whereas some TSPs have decreased their forecast as their business plans have changed.

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:

	Most Recent 2022 NRUF	January 2023 NRUF	
NPA	PED	PED	Remarks
226/382/519/548	Apr-2024	May-2024	Relief 17 June 2023 iaw Telecom Decision CRTC 2022-50.
236/250/604/672/778	Jul-2026	Dec-2025	Telecom Notice of Consultation CRTC 2021-244.
249/683/705	May-2032	Jan-2029	Entered Relief Planning window.
289/365/742/905	May-2029	Oct-2028	Entered Relief Planning window.
343/613/753	Oct-2033	Apr-2029	Entered Relief Planning window.
367/418/581	Jul-2033	Jun-2027	Entered Relief Planning window.
368/403/587/780/825	Feb-2028	Jun-2028	Entered Relief Planning window.
416/437/647	Mar-2026	Nov-2025	Telecom Notice of Consultation CRTC 2020-35.
506	Feb-2024	Jul-2024	Relief Date 29 April 2023 iaw Telecom Decision CRTC 2020-363.
709	Nov-2028	Dec-2024	Re-entered in relief planning window Approved NPA – 879 In Jeopardy Condition
782/902	Apr-2029	Feb-2028	Entered Relief Planning window.

3. Current and Past G-NRUF Projected Exhaust Dates

NPA	Location	2019	2020	2021	2022	2023
204/431	Manitoba	Jul-26	Jan-25	Apr-24	Nov-23	Oct-32
			Mar-38	Feb-35	Aug-34	
226/519/548	S. Ontario	Nov-26	Jan-28	Jul-24	Mar-25	May-24
				Sep-34	Feb-33	Jun-30
					Dec-40	Jul-37
						Sep-44
236/250/604/672/778	BC	Nov-26	Oct-26	Feb-27	Mar-27	Dec-25
		Sep-26	Mar-34	Oct-33	Nov-34	Nov-30
		Feb-34	Aug-41	Jun-40		Sep-38
		Jul-41				
249/683/705	N. E. Ontario	Jul-25	Apr-26	Apr-23	Oct-23	Jan-29
				Apr-31	May-32	Nov-40
				Jul-42		
263/438/514	Montreal	Oct-23	Mar-26	Jul-24	Mar-24	
		Aug-37	Beyond 2042	Dec-36	Jun-35	Sep-33
289/365/742/905	Toronto Fringe	Jun-22	Mar-23	Sep-22		Oct-28
		Oct-31	Jul-33	Mar-30	May-29	Aug-36
				Jul-39	Jan-38	Feb-44
306/474/639	Saskatchewan	May-22	Jan-22	May-22		Sep-32
			Sep-37	Jul-35	Jan-38	Jun-44
343/613/753	Ottawa area	Dec-23	Jun-25	Oct-22	Jun-23	Apr-29
		Dec-36	Oct-38	May-32	Oct-33	Jan-39
354/450/579	Montreal Fringe	Mar-33	Jun-24	Oct-24	Sep-23	Aug-24
		Beyond 2040	Jul-38	Oct-37	Apr-46	Feb-37
367/418/581	N. E. Quebec	Nov-29	Feb-33	Mar-28	Jul-33	Jun-27
						Apr-35
				Aug-37		Apr-44
368/403/587/780/825	Alberta	Jun-22	Dec-22	Jan-23	Aug-22	Jun-28
		Jul-29	Mar-30	Feb-30	Feb-28	Jul-37
		Feb-37	Sep-37	Mar-41	Jun-38	
416/437/647	Toronto	Jan-24	Jan-25	Jul-26	Mar-26	Nov-25
						May-33
		Jan-33	Jul-35	Mar-38	Jul-35	Oct-41
428/506	New Brunswick	Aug-22	Mar-24	Jan-24	Oct-24	Jul-24
						Aug-44

NPA	Location	2019	2020	2021	2022	2023
468/819/873	N. W. Quebec	Oct-26	Oct-25	Jul-25	Jul-23	Jun-32
					Jul-34	Feb-43
709	Nfld & Labrador	Apr-23	Aug-23	Mar-24	Sep-26	Dec-24
782/902	Nova Scotia & PEI	Mar-33	Apr-34	Nov-33	Nov-29	Feb-28
807	N.W. Ontario	Beyond 2040	Beyond 2041	Beyond 2042	Beyond 2043	Aug-40
867	Yukon, NWT, Nunavut	Jun-39	Beyond 2041	Beyond 2042	Beyond 2043	Oct-72

4. R-NRUF – High Level Summary

The results from the January 2023 R-NRUF are quite different from the July 2022 R-NRUF results due to some TSPs submitting updated data. The CNA has verified the input from TSPs and the variance from previous inputs can be rationalized.

The NRUF results were reviewed by the CSCN and RPCs during a joint conference call held on 6 April 2023.

NPA 226/382/519/548

NRUF data, including the most recent results, is summarized in the following chart.

NPA 226/382/519/548 Summary of Projected Exhaust Dates			
NPA	Type of C-NRUF	Date of Publication	Projected Exhaust Date
226/382/519/548	January 2021 G-NRUF	23 February 2021	July 2024
226/382/519/548	July 2021 R-NRUF	19 August 2021	July 2024
226/382/519/548	January 2022 R-NRUF	1 March 2022	March 2025
226/382/519/548	July 2022 R-NRUF	16 September 2022	March 2025
226/382/519/548	January 2023 R-NRUF	29 March 2023	May 2024

NPA 236/250/604/672/778

NRUF data, including the most recent results, is summarized in the following chart.

NPA 236/250/604/672/778 Summary of Projected Exhaust Dates			
NPA	Type of C-NRUF	Date of Publication	Projected Exhaust Date
236/250/604/672/778	January 2021 G-NRUF	23 February 2021	February 2027
236/250/604/672/778	July 2021 R-NRUF	19 August 2021	April 2027
236/250/604/672/778	January 2022 R-NRUF	1 March 2022	March 2027
236/250/604/672/778	July 2022 R-NRUF	16 September 2022	July 2026
236/250/604/672/778	January 2023 R-NRUF	29 March 2023	December 2025

NPA 249/683/705

NRUF data, including the most recent results, is summarized in the following chart.

NPA 249/683/705 Summary of Projected Exhaust Dates			
NPA	Type of C-NRUF	Date of Publication	Projected Exhaust Date
249/683/705	January 2023 G-NRUF	29 March 2023	January 2029

NPA 343/613/753

NRUF data, including the most recent results, is summarized in the following chart.

NPA 343/613/753 Summary of Projected Exhaust Dates			
NPA	Type of C-NRUF	Date of Publication	Projected Exhaust Date
343/613/753	January 2023 G-NRUF	29 March 2023	June 2023

NPA 367/418/581

NRUF data, including the most recent results, is summarized in the following chart.

NPA 367/418/581 Summary of Projected Exhaust Dates			
NPA	Type of C-NRUF	Date of Publication	Projected Exhaust Date
367/418/581	January 2023 G-NRUF	29 March 2023	June 2027

NPA 368/403/587/780/825

NRUF data, including the most recent results, is summarized in the following chart.

NPA 403/587/780/825 Summary of Projected Exhaust Dates			
NPA	Type of C-NRUF	Date of Publication	Projected Exhaust Date
368/403/587/780/825	January 2023 G-NRUF	29 March 2023	June 2028

NPA 416/437/647

NRUF data, including the most recent results, is summarized in the following chart.

NPA 416/437/647 Summary of Projected Exhaust Dates			
NPA	Type of C-NRUF	Date of Publication	Projected Exhaust Date
416/437/647	January 2019 G-NRUF	26 March 2019	January 2024
416/437/647	July 2019 R-NRUF	20 September 2019	June 2025
416/437/647	January 2020 G-NRUF	24 March 2020	January 2025
416/437/647	July 2020 R-NRUF	18 August 2020	November 2025
416/437/647	January 2021 R-NRUF	23 February 2021	July 2026
416/437/647	July 2021 R-NRUF	19 August 2021	November 2025
416/437/647	January 2022 R-NRUF	1 March 2022	March 2026
416/437/647	July 2022 R-NRUF	16 September 2022	November 2026

NPA 416/437/647 Summary of Projected Exhaust Dates			
NPA	Type of C-NRUF	Date of Publication	Projected Exhaust Date
416/437/647	January 2023 R-NRUF	29 March 2023	November 2025

NPA 428/506

NRUF data, including the most recent results, is summarized in the following chart.

NPA 428/506 Summary of Projected Exhaust Dates			
NPA	Type of C-NRUF	Date of Publication	Projected Exhaust Date
428/506	January 2015 G-NRUF	27 March 2015	April 2025
428/506	January 2016 G-NRUF	21 March 2016	February 2021
428/506	July 2016 R-NRUF	12 October 2016	May 2020
428/506	January 2017 R-NRUF	29 March 2017	December 2021
428/506	July 2017 R-NRUF	8 September 2017	November 2024
428/506	January 2018 R-NRUF	20 March 2018	December 2021
428/506	July 2018 R-NRUF	5 September 2018	January 2022
428/506	January 2019 R-NRUF	26 March 2019	August 2022
428/506	July 2019 R-NRUF	20 September 2019	April 2023
428/506	January 2020 G-NRUF	24 March 2020	March 2024
428/506	July 2020 R-NRUF	18 August 2020	March 2024
428/506	January 2021 R-NRUF	23 February 2021	January 2024
428/506	July 2021 R-NRUF	19 August 2021	November 2023
428/506	January 2022 R-NRUF	1 March 2022	October 2024
428/506	July 2022 R-NRUF	16 September 2022	February 2024
428/506	January 2023 R-NRUF	29 March 2023	July 2024

NPA 709/879

NRUF data, including the most recent results, is summarized in the following chart.

NPA 709/879 Summary of Projected Exhaust Dates			
NPA	Type of C-NRUF	Date of Publication	Projected Exhaust Date
709/879	January 2015 G-NRUF	27 March 2015	August 2024
709/879	January 2016 G-NRUF	21 March 2016	May 2019
709/879	April 2016 J-NRUF	15 May 2016	March 2019
709/879	July 2016 J-NRUF	2 September 2016	March 2019
709/879	October 2016 J-NRUF	5 December 2016	March 2019
709/879	January 2017 J-NRUF	29 March 2017	August 2019
709/879	April 2017 J-NRUF	2 June 2017	August 2019
709/879	July 2017 J-NRUF	5 September 2017	May 2023
709/879	January 2018 R-NRUF	20 March 2018	April 2023
709/879	July 2018 R-NRUF	5 September 2018	March 2023
709/879	January 2019 R-NRUF	26 March 2019	August 2023
709/879	July 2019 R-NRUF	20 September 2019	October 2023
709/879	January 2020 G-NRUF	24 March 2020	March 2023
709/879	July 2020 R-NRUF	18 August 2020	June 2028
709/879	January 2021 R-NRUF	23 February 2021	September 2026

NPA 709/879 Summary of Projected Exhaust Dates			
NPA	Type of C-NRUF	Date of Publication	Projected Exhaust Date
709/879	July 2021 R-NRUF	19 August 2021	December 2026
709/879	January 2022 R-NRUF	1 March 2022	November 2028*
709/879	January 2023 G-NRUF	29 March 2023	December 2024**

* Out of Relief Planning window

** In Jeopardy Condition

NPA 782/902

NRUF data, including the most recent results, is summarized in the following chart.

NPA 782/902 Summary of Projected Exhaust Dates			
NPA	Type of C-NRUF	Date of Publication	Projected Exhaust Date
782/902	January 2023 G-NRUF	29 March 2023	February 2028

NPA 622 (Non-Geo)

NRUF data, including the most recent results, is summarized in the following chart.

NPA 622 Summary of Projected Exhaust Dates			
NPA (Non-Geo)	Type of C-NRUF	Date of Publication	Projected Exhaust Date
622	January 2023 G-NRUF	29 March 2023	May 2024

5. Schedule of Future NRUF Activities in the Current Year

Due Date	NRUF Type	NRUF Format	NPA(s)
28 April	J-NRUF	NPA level	709/879
14 July	J-NRUF	NPA level	709/879
28 July	R-NRUF	NPA level	236/250/604/672/778
28 July	G-NRUF	NPA level	622/633 (Non-Geo)
28 July	R-NRUF	NPA level	249/683/705
28 July	R-NRUF	NPA level	289/365/742/905
28 July	R-NRUF	NPA level	343/613/753
28 July	R-NRUF	NPA level	367/418/581
28 July	R-NRUF	NPA level	368/403/587/780/825
28 July	R-NRUF	NPA level	416/437/647
28 July	R-NRUF	NPA level	782/902
13 October	J-NRUF	NPA level	709/879

6. Summary of Challenges Encountered during the G- & R-NRUF Process

- a) Most problems with NRUF submissions are created by companies not knowing how many CO Codes they held on 1 January 2023.

- b) Some TSPs submitted their NRUF after the requested due date, even after a reminder email was sent, but all TSPs submitted within 7 days after 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.

7. 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 unpredictable.
- 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, relief planning).
- c) Given the volatility of the forecast and the extra work required by the RPCs to constantly adjust Relief Implementation Schedules, the CNA suggests that the RPCs consider recommending in their Planning Documents and Relief Implementation Plans 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 forecasting, budgeting plans and allocation of resources within a given time frame as well as providing a consistent message to the public.

8. G-NRUF Assumptions

The assumptions used for the January 2023 G-NRUF are the assumptions that were provided on 12 October 2022 to the CNA by the CSCN for conducting the January 2023 NRUF.

Item 4 of the 12 October 2022 letter states, in part:

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 seek guidance from CRTC staff and will advise the CSCN of the alternative method used.

In this instance, the CNA compared the average forecast growth for the next five years, the average growth for the next six years and average historical growth for the past five years. The lowest number resulting from these calculations was the one used to identify the PED for each NPA.

9. 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 2022 growth with current and historical forecasts to determine whether

the January 2022 NRUF results are reasonable and the Projected Exhaust Dates for all NPAs are realistic.

The CNA believes that emerging technology growth has been responsible for a good part of the recent demand. It is assumed that the introduction of the *Canadian Non-Geographic Code Assignment Guideline*, will alleviate some of the issues associated with Machine-to-Machine demand but it is difficult to quantify. TSPs are applying for non-geographic codes.

Based on the data and explanations provided by TSPs in response to the CNA's questions, the NRUF results appear reasonable and the Projected Exhaust Dates for Canadian NPAs are generally realistic.

January 2023 G- & R- NRUF Aggregate Results

Geographic NPAs																							
As of January 1																							
NPA Complex / Years	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
204/431/584	1385	1597	1719	1867	1969	2071	2155	2210	2270	2330	2411	2471	2531	2591	2651	2711	2771	2831	2891	2951	3011	3071	3131
226/382/519/548	2032	2316	2542	2712	2827	2928	3040	3150	3284	3394	3504	3614	3724	3834	3944	4067	4177	4287	4397	4507	4617	4727	4861
236/250/604/672/778	3275	3591	3792	4040	4231	4442	4616	4715	4838	4937	5036	5135	5234	5333	5432	5531	5655	5754	5853	5952	6051	6150	6249
249/683/705	1384	1634	1815	1956	2095	2269	2395	2481	2547	2613	2679	2745	2811	2877	2943	3009	3075	3141	3237	3303	3369	3435	3501
263/438/514	1420	1539	1664	1783	1908	2025	2133	2190	2247	2304	2361	2429	2486	2543	2600	2657	2714	2771	2828	2885	2942	2999	3056
289/365/742/905	2332	2554	2712	2870	2984	3126	3246	3345	3444	3543	3642	3741	3840	3939	4068	4167	4266	4365	4464	4563	4662	4791	4890
306/474/639	1622	1765	1859	1955	2015	2087	2154	2221	2288	2355	2433	2500	2567	2634	2701	2768	2835	2902	2969	3036	3103	3170	3261
343/613/753	1514	1739	1930	2058	2187	2293	2379	2475	2555	2635	2715	2795	2875	2955	3035	3115	3195	3304	3384	3464	3544	3624	3704
354/450/579	1458	1550	1638	1739	1843	1916	1978	2030	2082	2134	2186	2238	2290	2342	2394	2469	2521	2573	2625	2677	2729	2781	2833
367/418/581	1684	1847	2042	2196	2337	2502	2649	2737	2825	2913	3001	3089	3177	3270	3358	3446	3534	3622	3710	3798	3886	3974	4084
368/403/587/780/825	3094	3292	3477	3669	3788	3932	4110	4191	4272	4353	4434	4515	4596	4677	4758	4863	4944	5025	5106	5187	5268	5349	5430
416/437/647	2030	2168	2295	2443	2552	2672	2782	2877	2972	3067	3162	3263	3358	3453	3548	3643	3738	3833	3928	4046	4141	4236	4331
428/506	683	771	845	904	967	1031	1085	1118	1151	1184	1217	1250	1283	1316	1349	1382	1415	1448	1481	1514	1547	1580	1636
468/819/873	1474	1690	1810	1932	2002	2084	2152	2224	2296	2368	2469	2541	2613	2685	2757	2829	2901	2973	3045	3117	3189	3291	3363
709/879	624	708	814	884	964	1024	1108	1120	1135	1147	1159	1171	1183	1195	1207	1219	1231	1243	1255	1267	1279	1291	1303
782/902	1210	1210	1293	1371	1452	1513	1590	1670	1732	1794	1856	1918	1980	2042	2104	2166	2228	2290	2352	2434	2496	2558	2620
807	291	428	488	530	575	613	661	673	685	697	709	721	733	745	757	769	781	793	825	837	849	861	873
867	271	308	342	384	421	461	499	506	513	520	527	534	541	548	555	562	569	576	583	590	597	604	611
Total Codes*	27783	30707	33077	35293	37117	38989	40732	41933	43136	44288	45501	46670	47822	48979	50161	51373	52550	53731	54933	56128	57280	58492	59737
NPA Complex / Years	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
* Includes Admin. Codes																							
Non-Geographic NPAs																							
As of January 1																							
NPA / Years	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
600	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
6YY	524	679	1050	1473	2173	2618	3003	3616	4506	5344	6195	7088	7959	8871	9835	10831	11870	12959	14030	15143	16290	17456	18714
9YY	29	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
NPA / Years	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045

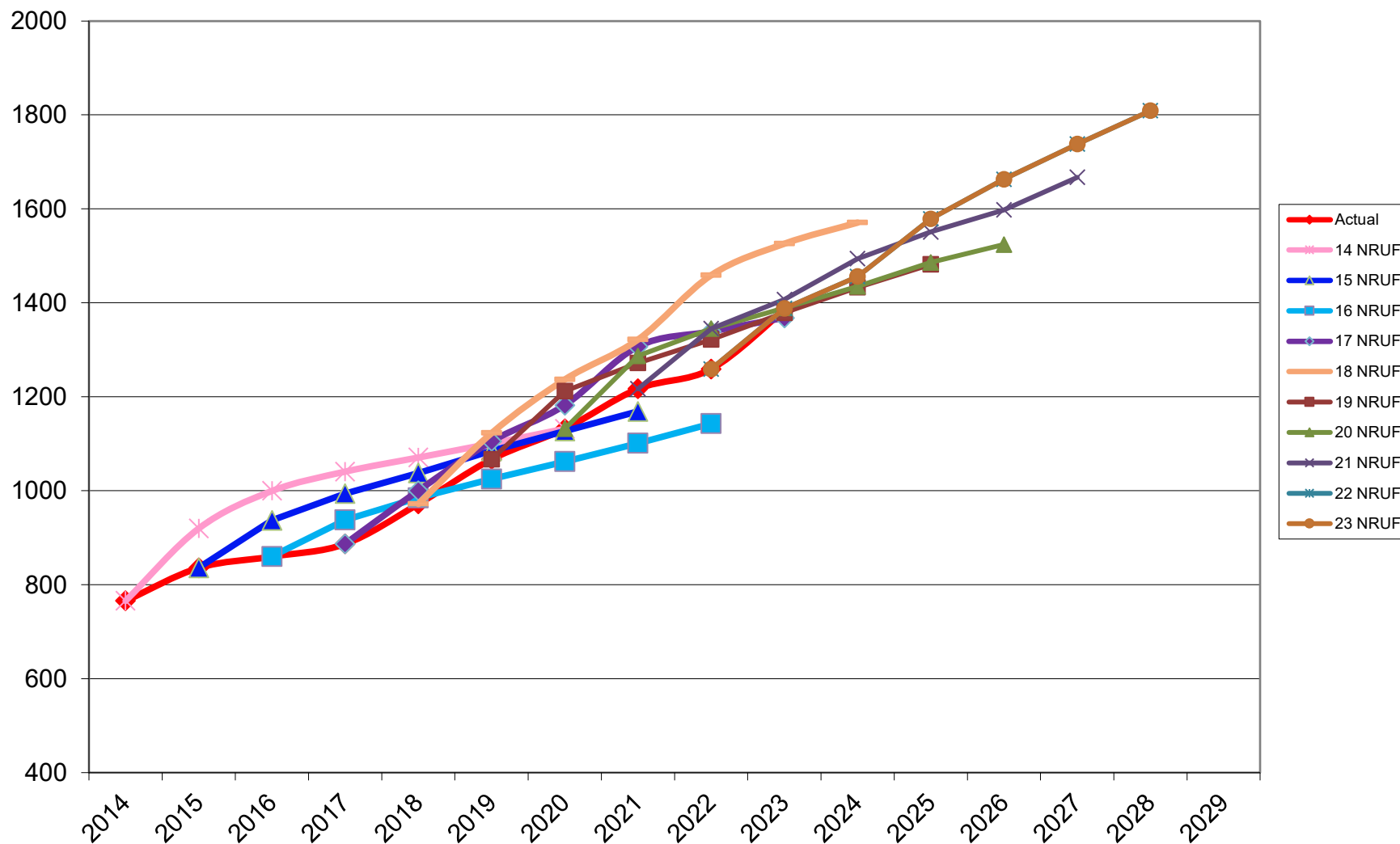
January 2023 G- & R- NRUF Aggregate Results

5 Year Actual Versus Forecast 2022																
NPA / Years	2018			2019			2020			2021			2022			Rel Delta
	Actual	Forecast	Rel Delta	Actual	Forecast	Rel Delta	Actual	Forecast	Rel Delta	Actual	Forecast	Rel Delta	Actual	Forecast	Rel Delta	5Y Average
204/431/584	64	151	42.4%	80	145	55.2%	50	128	39.1%	41	129	31.8%	63	68	92.6%	52.2%
226/519/548	113	177	63.8%	59	224	26.3%	88	176	50.0%	170	322	52.8%	118	158	74.7%	53.5%
236/250/604/672/778	122	238	51.3%	65	219	29.7%	116	214	54.2%	70	149	47.0%	118	154	76.6%	51.7%
249/683/705	71	84	84.5%	44	126	34.9%	71	66	107.6%	37	180	20.6%	103	150	68.7%	63.2%
263/438/514	56	86	65.1%	30	81	37.0%	13	109	11.9%	41	83	49.4%	56	82	68.3%	46.4%
289/365/742/905	62	183	33.9%	75	112	67.0%	111	210	52.9%	150	247	60.7%	95	149	63.8%	55.6%
306/474/639	136	127	107.1%	33	219	15.1%	37	75	49.3%	48	97	49.5%	81	126	64.3%	57.1%
343/613/753	126	74	170.3%	20	201	10.0%	63	103	61.2%	44	191	23.0%	145	170	85.3%	69.9%
354/450/579	72	88	81.8%	56	162	34.6%	56	53	105.7%	101	73	138.4%	73	115	63.5%	84.8%
367/418/581	166	141	117.7%	115	240	47.9%	65	101	64.4%	55	179	30.7%	50	143	35.0%	59.1%
368/403/587/780/825	240	158	151.9%	50	304	16.4%	37	74	50.0%	63	130	48.5%	100	113	88.5%	71.1%
416-437-647	95	95	100.0%	70	106	66.0%	64	126	50.8%	72	194	37.1%	74	89	83.1%	67.4%
428/506	12	54	22.2%	33	119	27.7%	37	79	46.8%	10	102	9.8%	56	50	112.0%	43.7%
468/819/873	96	82	117.1%	35	163	21.5%	61	91	67.0%	89	155	57.4%	78	91	85.7%	69.7%
709/879	2	57	3.5%	9	101	8.9%	7	62	11.3%	5	46	10.9%	34	44	77.3%	22.4%
782-902	90	84	107.1%	41	150	27.3%	34	61	55.7%	103	112	92.0%	42	64	65.6%	69.6%
807	5	14	35.7%	14	19	73.7%	5	23	21.7%	10	48	20.8%	22	25	88.0%	48.0%
867	5	24	20.8%	8	23	34.8%	16	51	31.4%	3	36	8.3%	1	17	5.9%	20.2%
			76.5%			35.2%			51.7%			43.8%			72.2%	
Notes:																
Actual is based on Part 3 assignment date.																
Forecast is from G-NRUF submissions, ignoring CNA codes.																
Relative Delta is Actual/Forecast.																

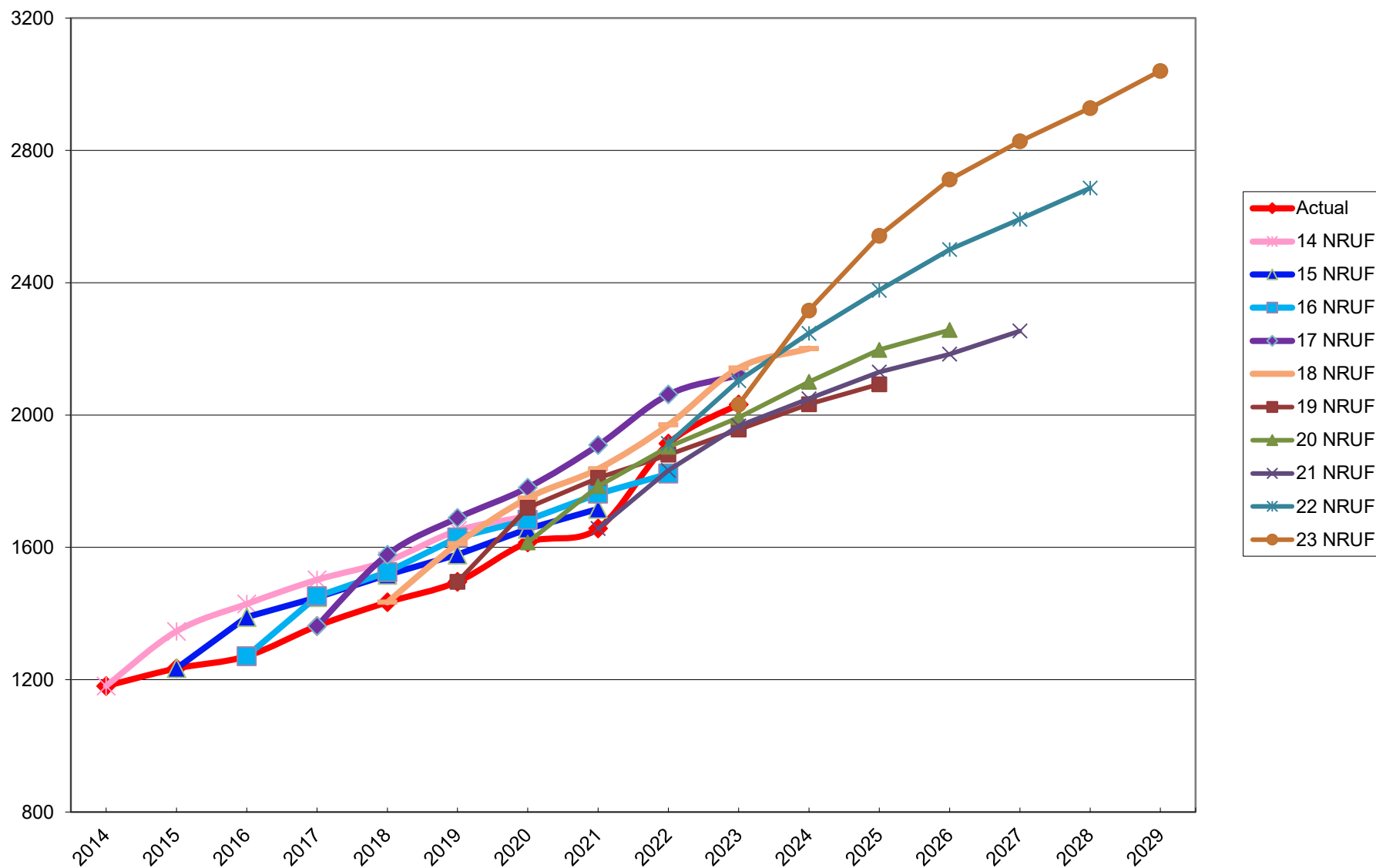
January 2023 G- & R- NRUF Aggregate Results

CNAStatus	204/431/ 584	226/382/ 519/548	236/250/ 604/672/ 778	249/683/ 705	263/438/ 514	289/365/ 742/905	306/474/ 639	343/613/ 753	354/450/ 579	367/418/ 581	368/403/ 587/780/ 825	416/437/ 647	428/506	468/819/ 873	709/879	782/902	807	867
	(MB)	(ON) *	(BC)	(ON)	(QC)	(ON)	(SK)	(ON)	(QC)	(QC)	(AB)	(ON)	(NB) *	(QC)	(NL) *	(NS)	(ON)	(NT)
Based on PN/Decision	0	0	0	0	0	0	0	0	0	0	0	0	3	0	2	0	0	0
Based on PN/Decision	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0
Protected	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
N11 Codes	24	24	40	24	24	32	24	24	24	24	40	24	8	24	8	16	8	8
555; 950; 976; 988	10	8	15	9	9	12	10	9	10	9	16	8	3	9	3	6	3	3
Plant Test	5	6	10	6	6	8	6	6	6	6	10	6	2	6	2	4	2	2
Home NPA	9	12	23	9	9	16	9	9	9	9	21	9	2	9	2	4	1	1
Neighbouring NPA	0	0	0	24	6	28	6	21	6	0	1	0	2	18	3	0	4	8
Future NPAs	6	6	0	9	6	4	12	12	18	12	0	6	5	18	5	2	8	8
Relief NPAs	0	0	0	3	0	0	0	0	0	0	0	6	0	0	0	2	0	0
911 Mis-dial (i.e 912; 914; 915)	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	3	3
310; 610; 810	7	8	13	7	7	11	8	8	7	8	11	8	2	7	2	5	2	3
USA Dialing Problems	0	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	1	0
Stranded by OCN/line of business	5	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	66	64	101	92	67	111	75	89	80	68	99	67	36	97	30	39	32	36
Unforecasted Demand	3	5	7	5	6	7	3	7	5	0	7	6	0	2	0	3	2	2
* Complex contains assigned Relief NPA that is not currently in service																		

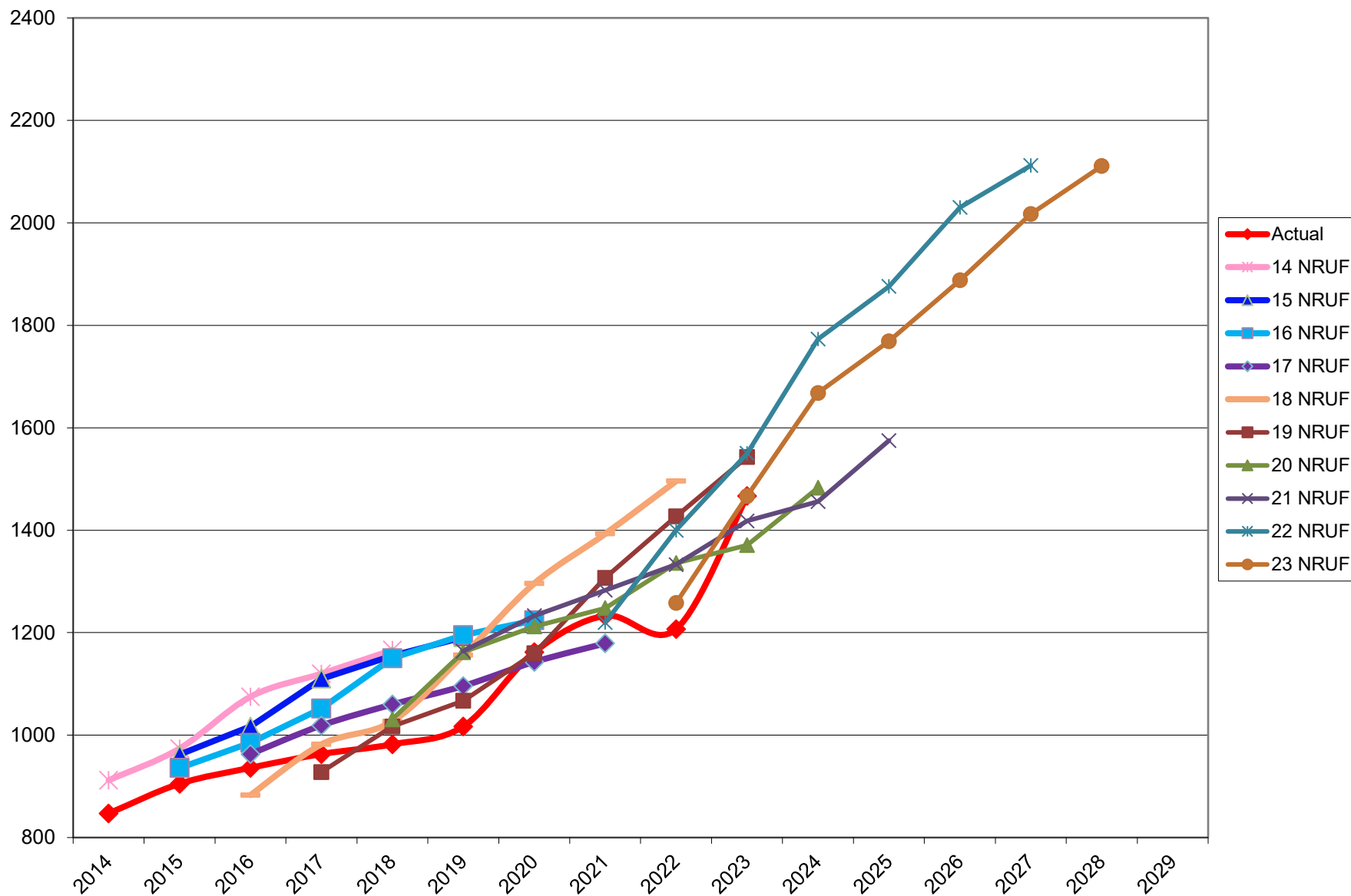
NPA 204/431/584 Manitoba



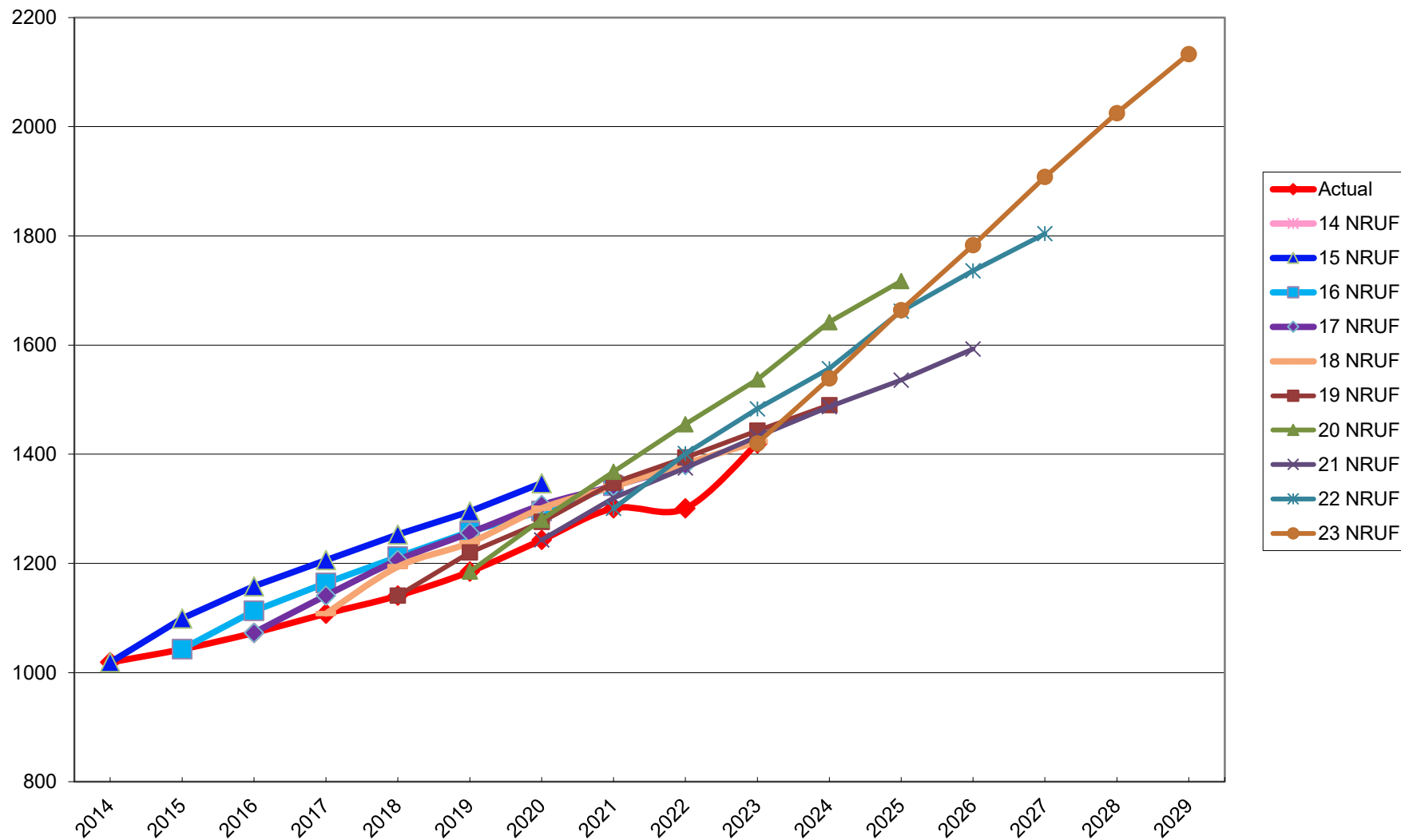
NPA 226/382/519/548 Ontario



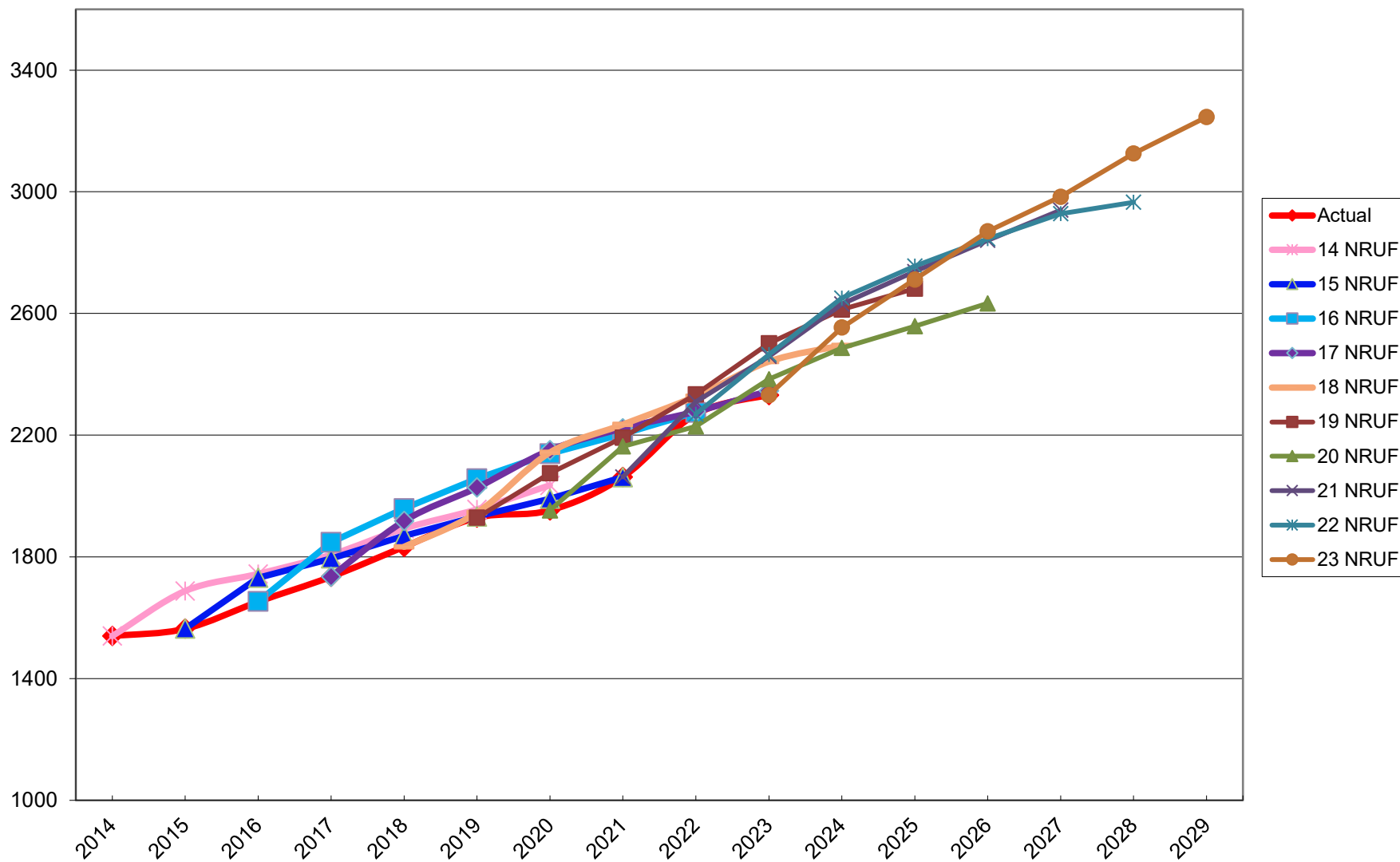
NPA 249/683/705 Ontario



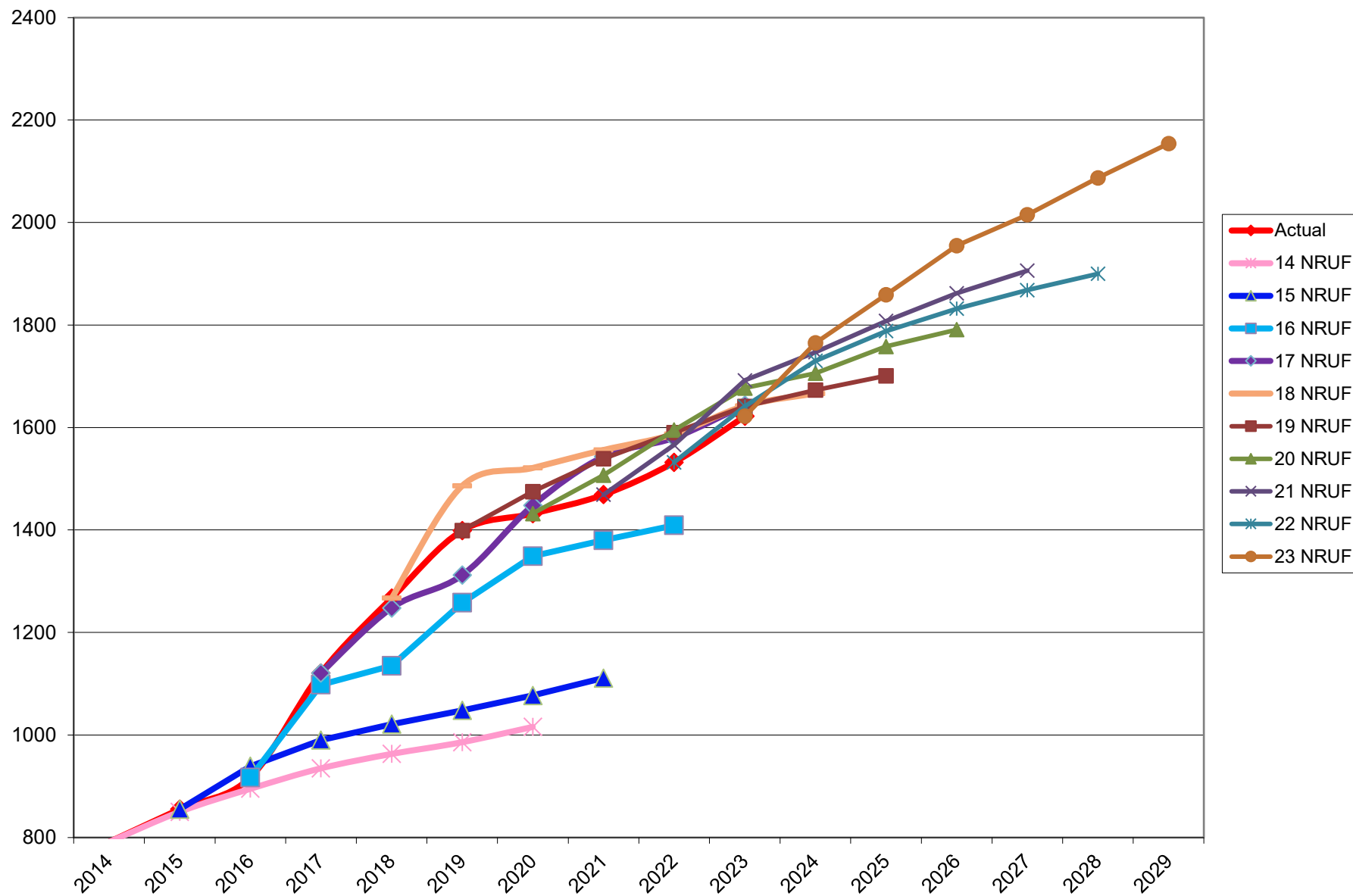
NPA 263/438/514 Quebec



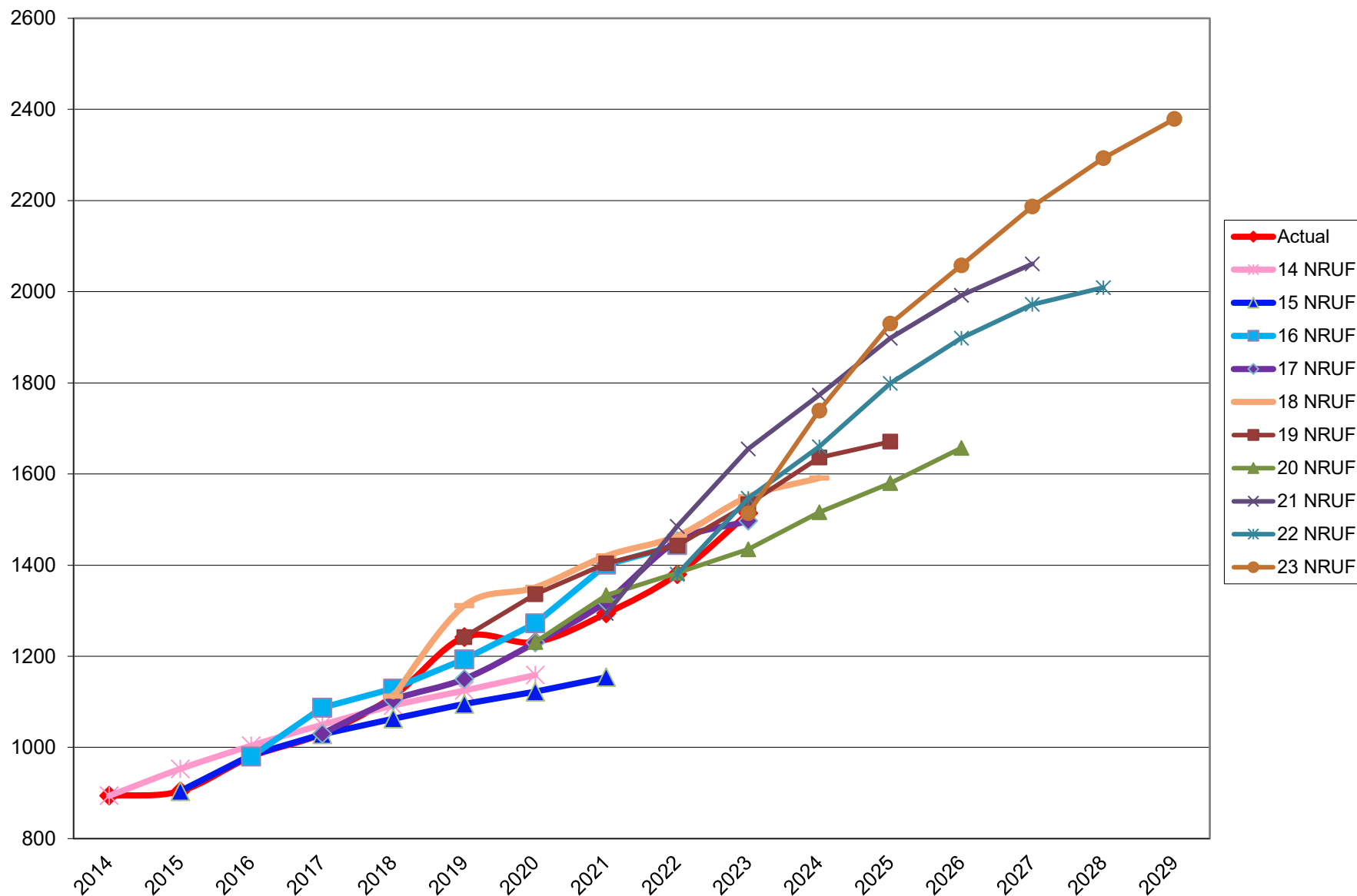
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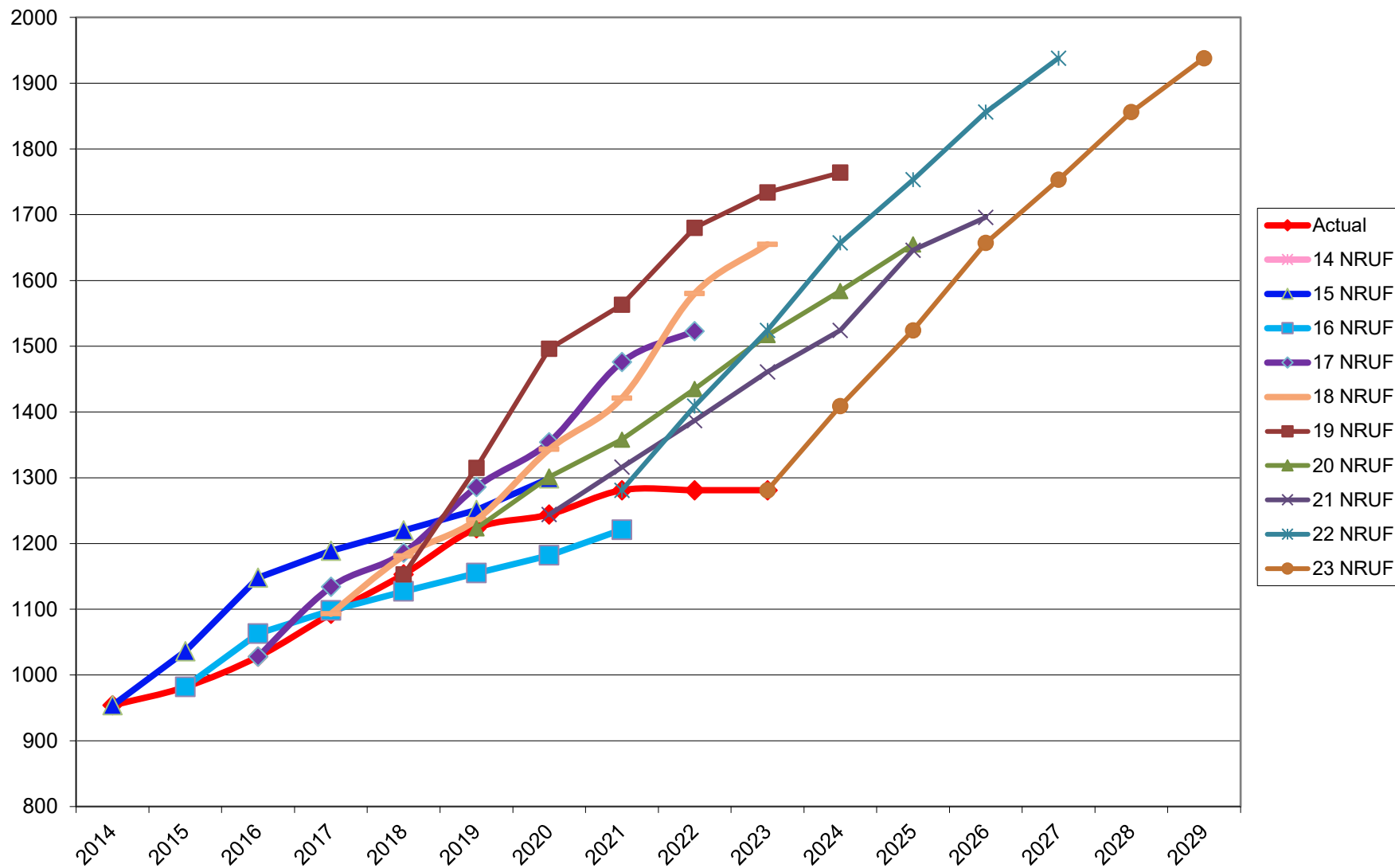
NPA 306/474/639 Saskatchewan



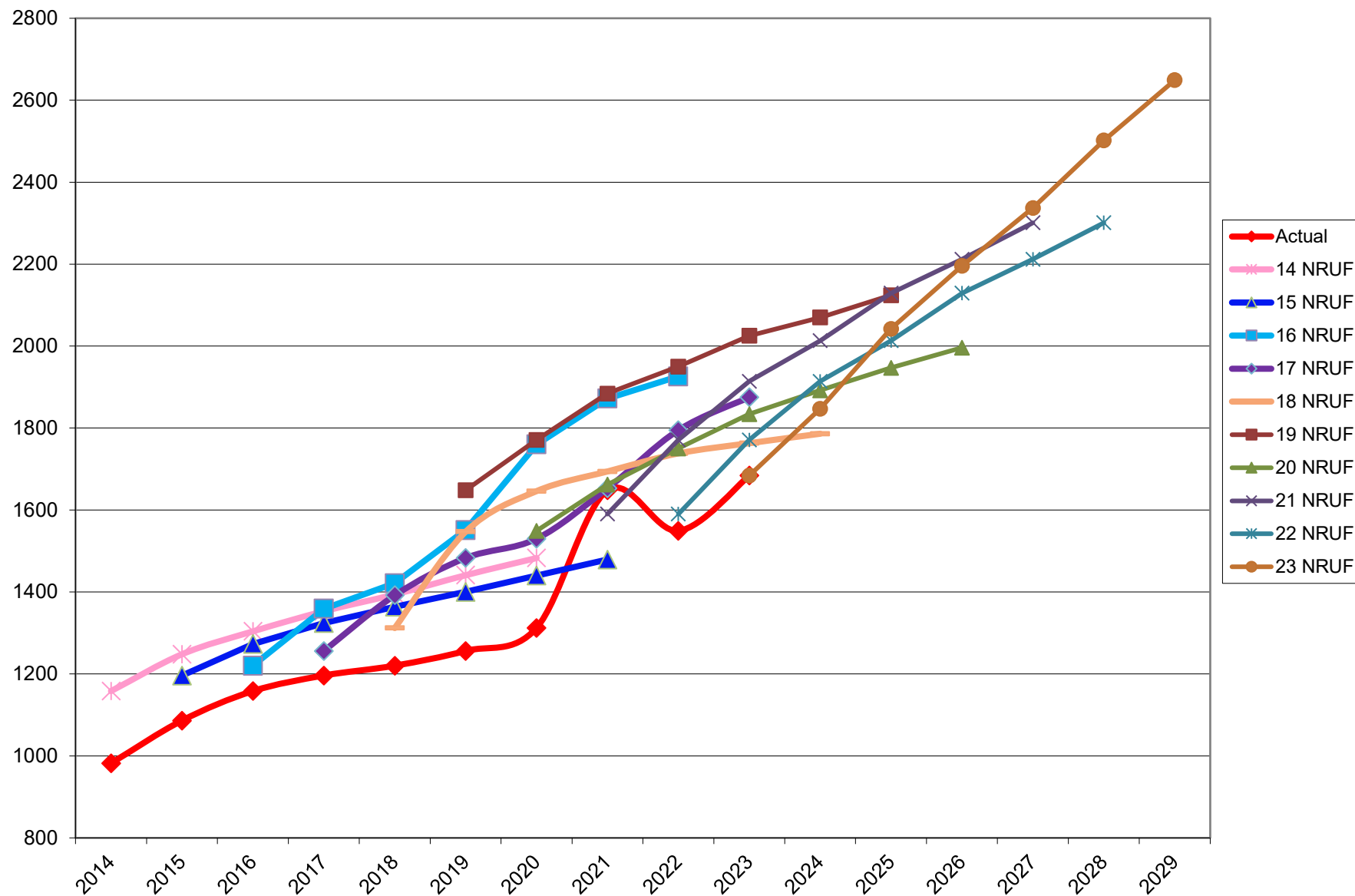
NPA 343/613/753 Ontario



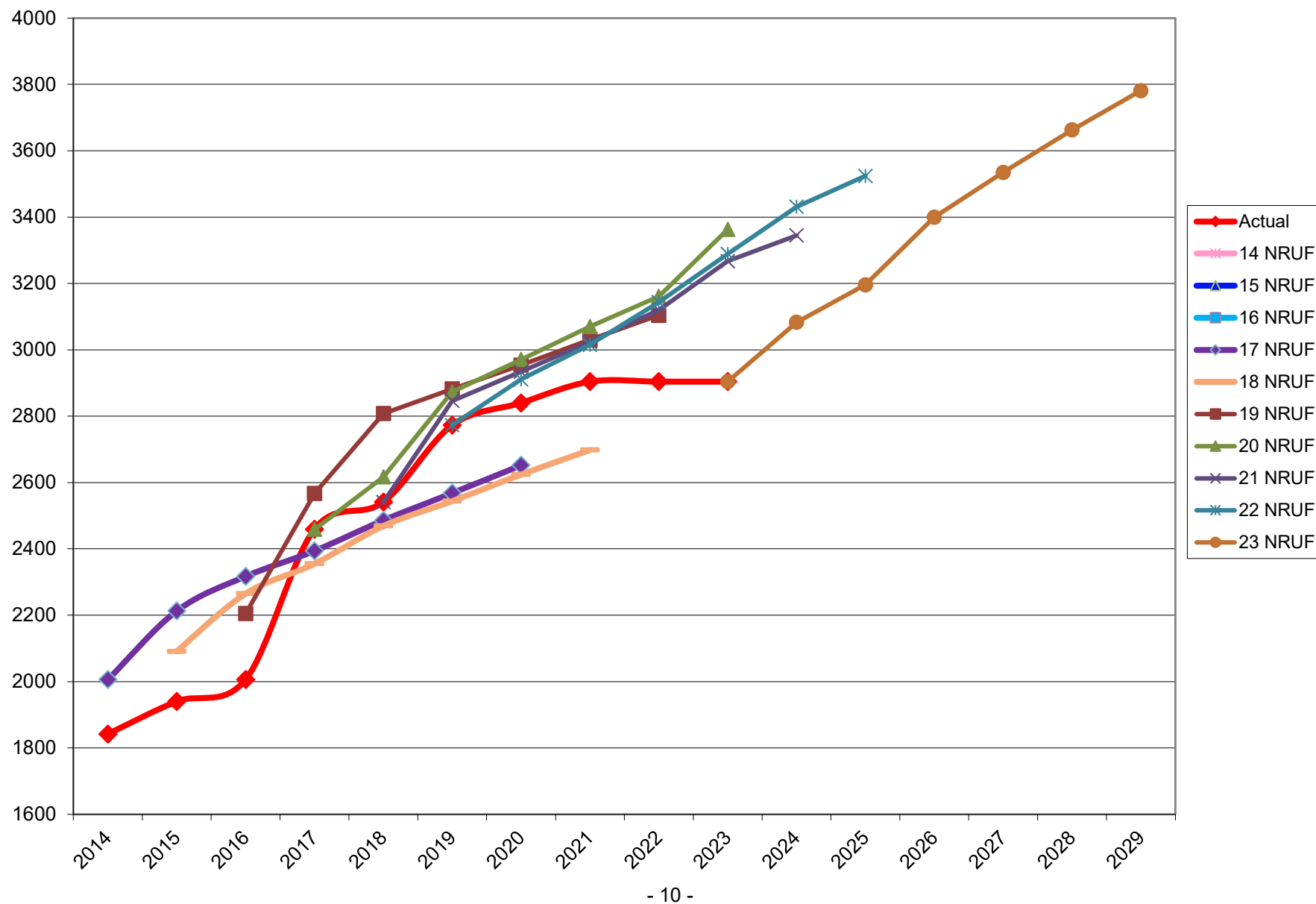
NPA 354/450/579 Quebec



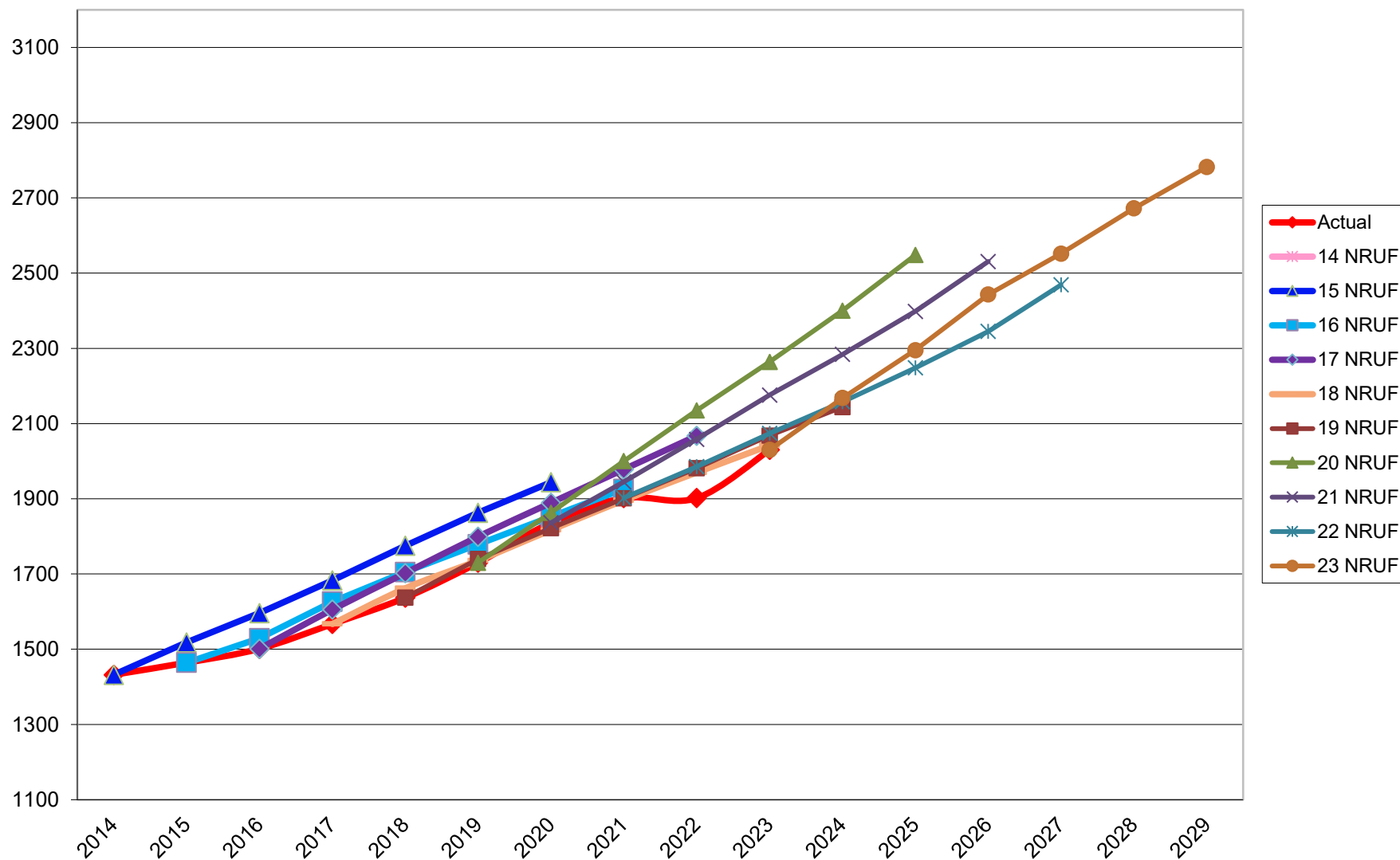
NPA 367/418/581 Quebec



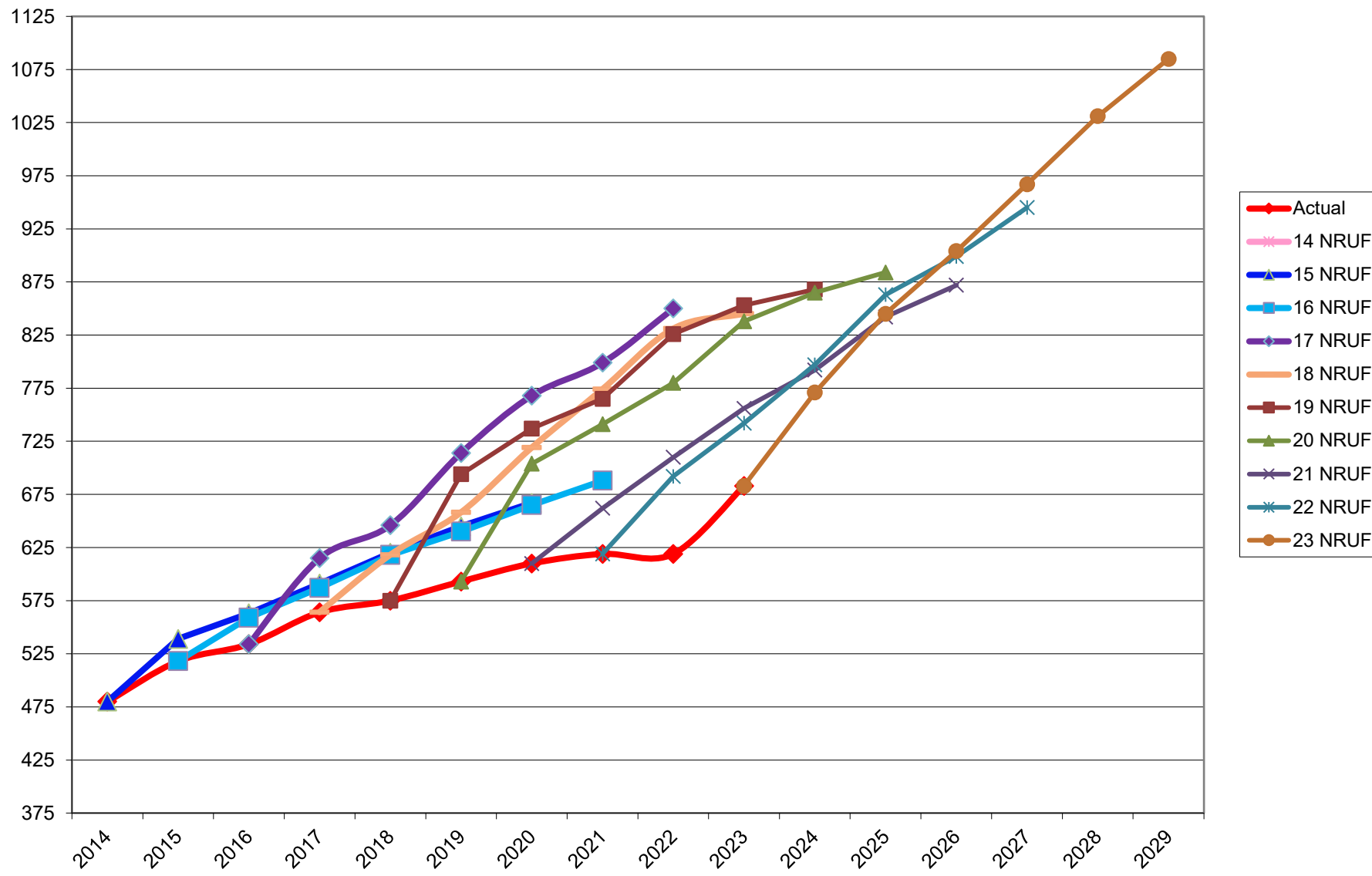
NPA 368/403/587/780/825 Alberta



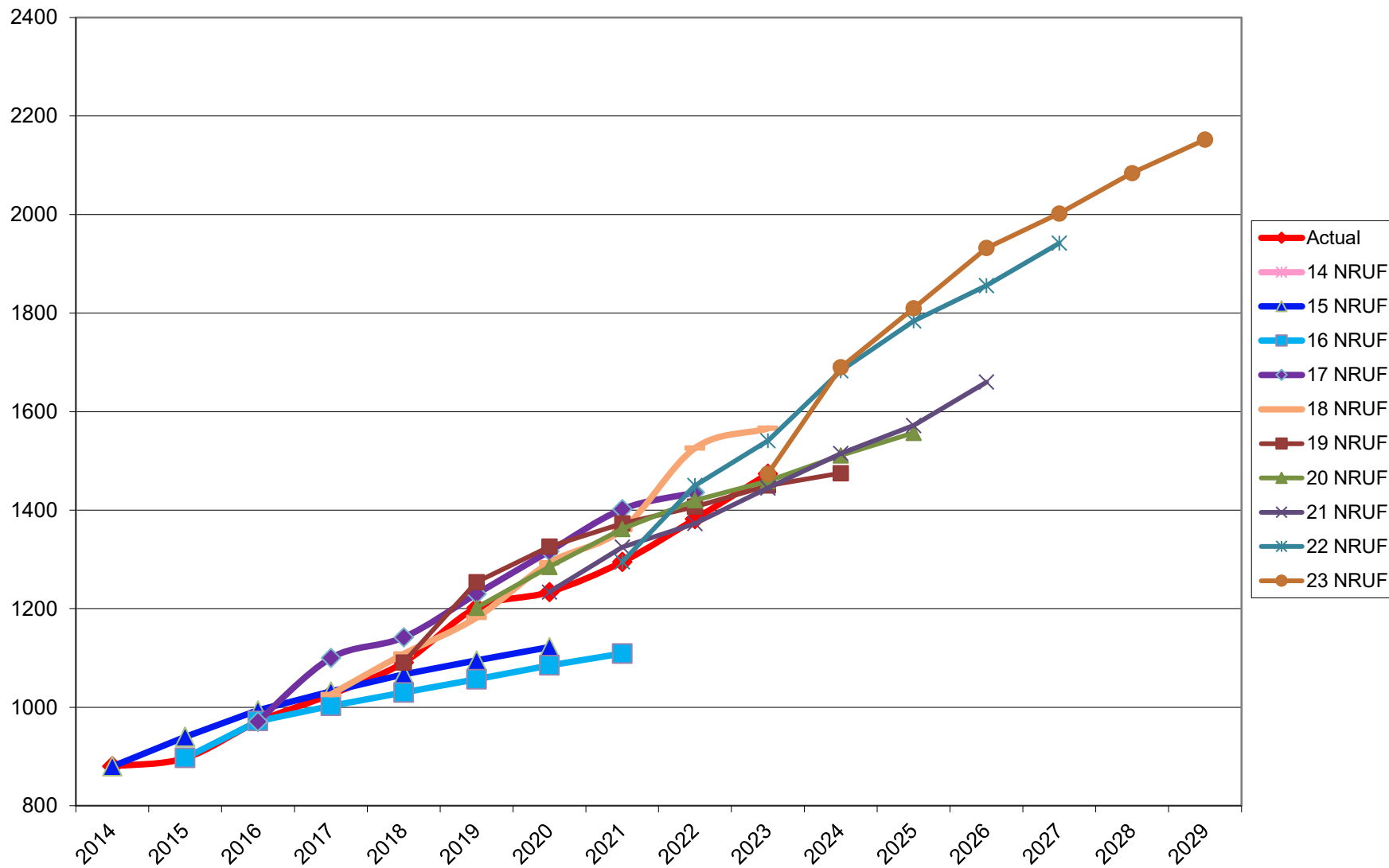
NPA 416/437/647 Ontario



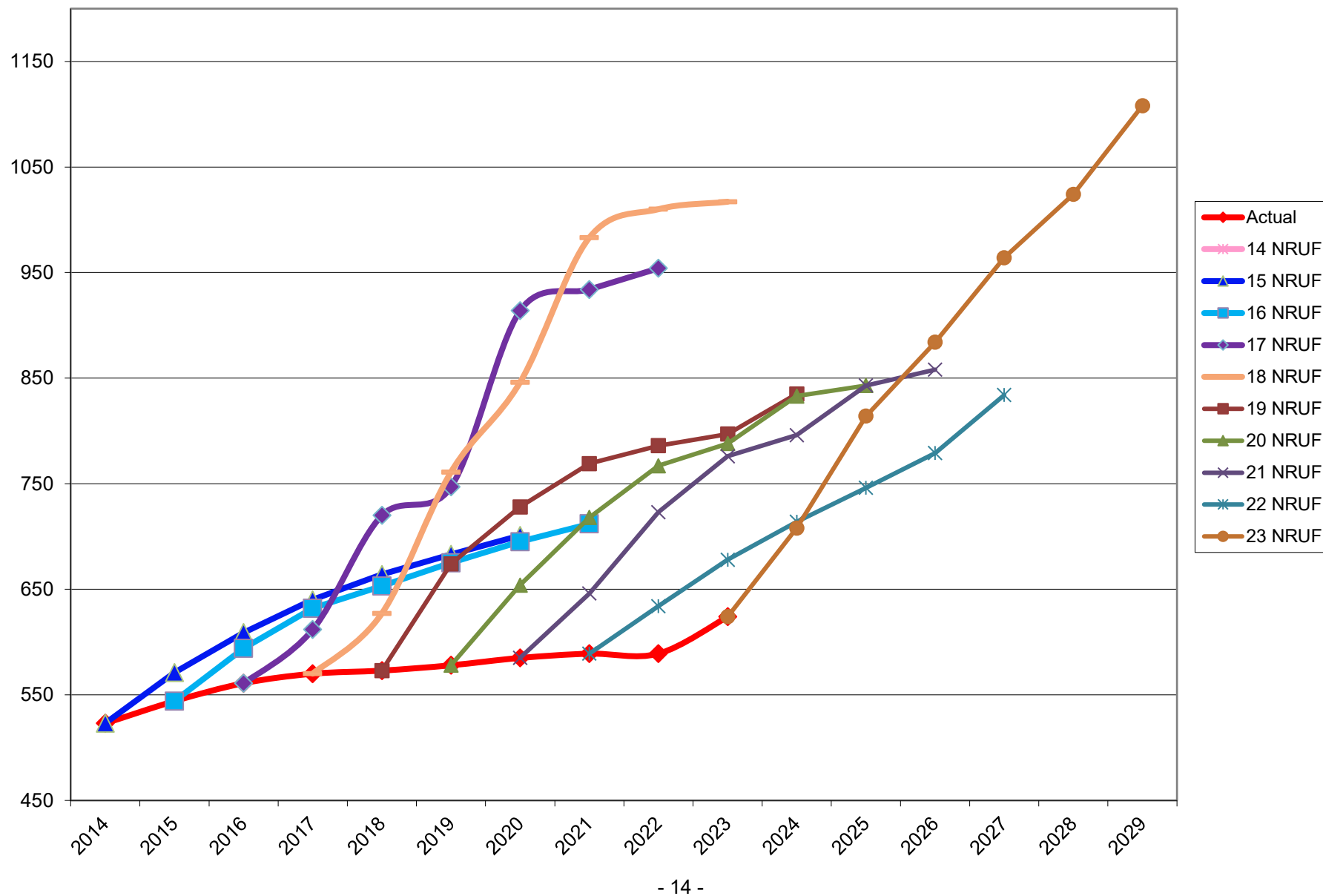
NPA 428/506 New Brunswick



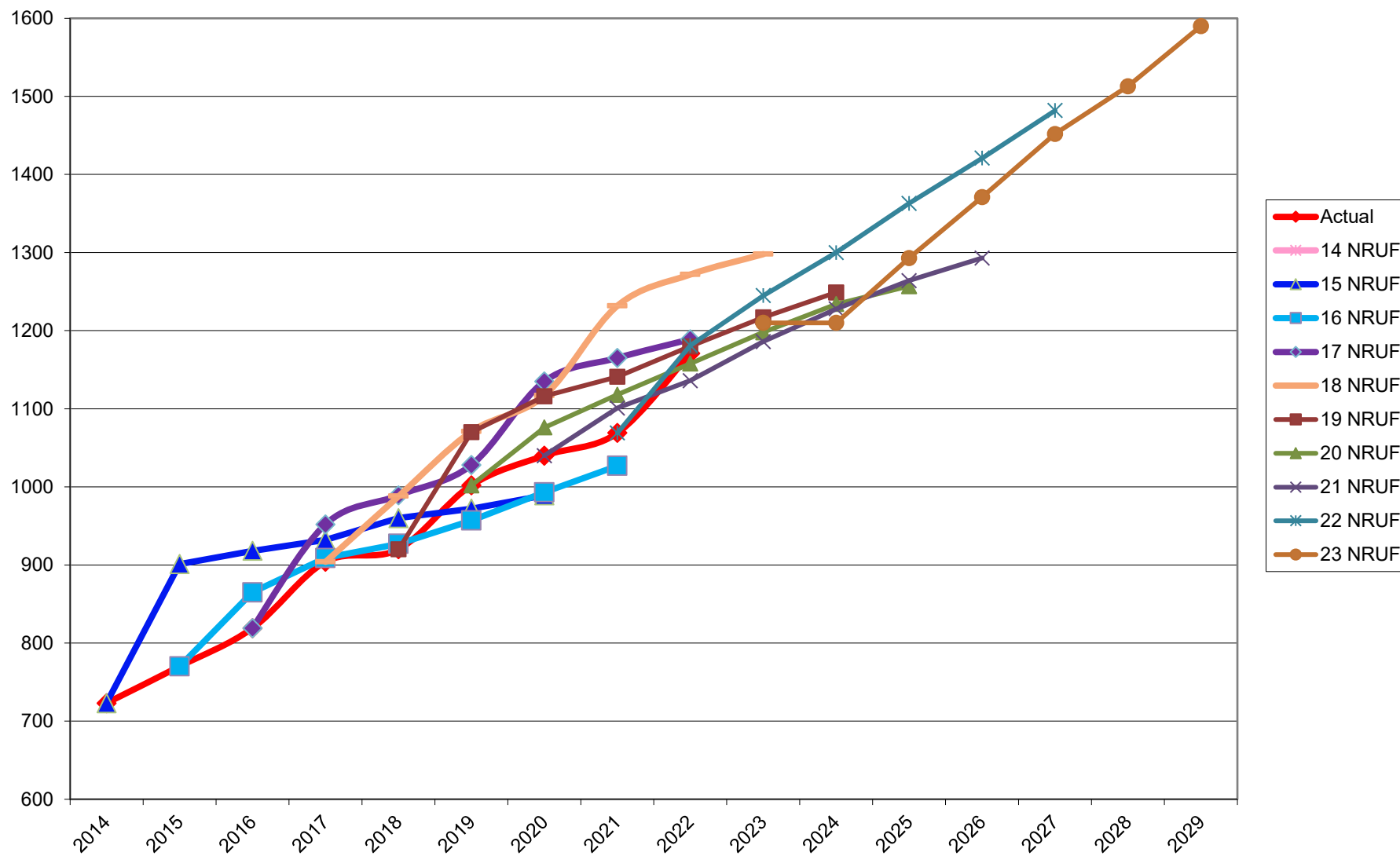
NPA 468/819/873 Quebec



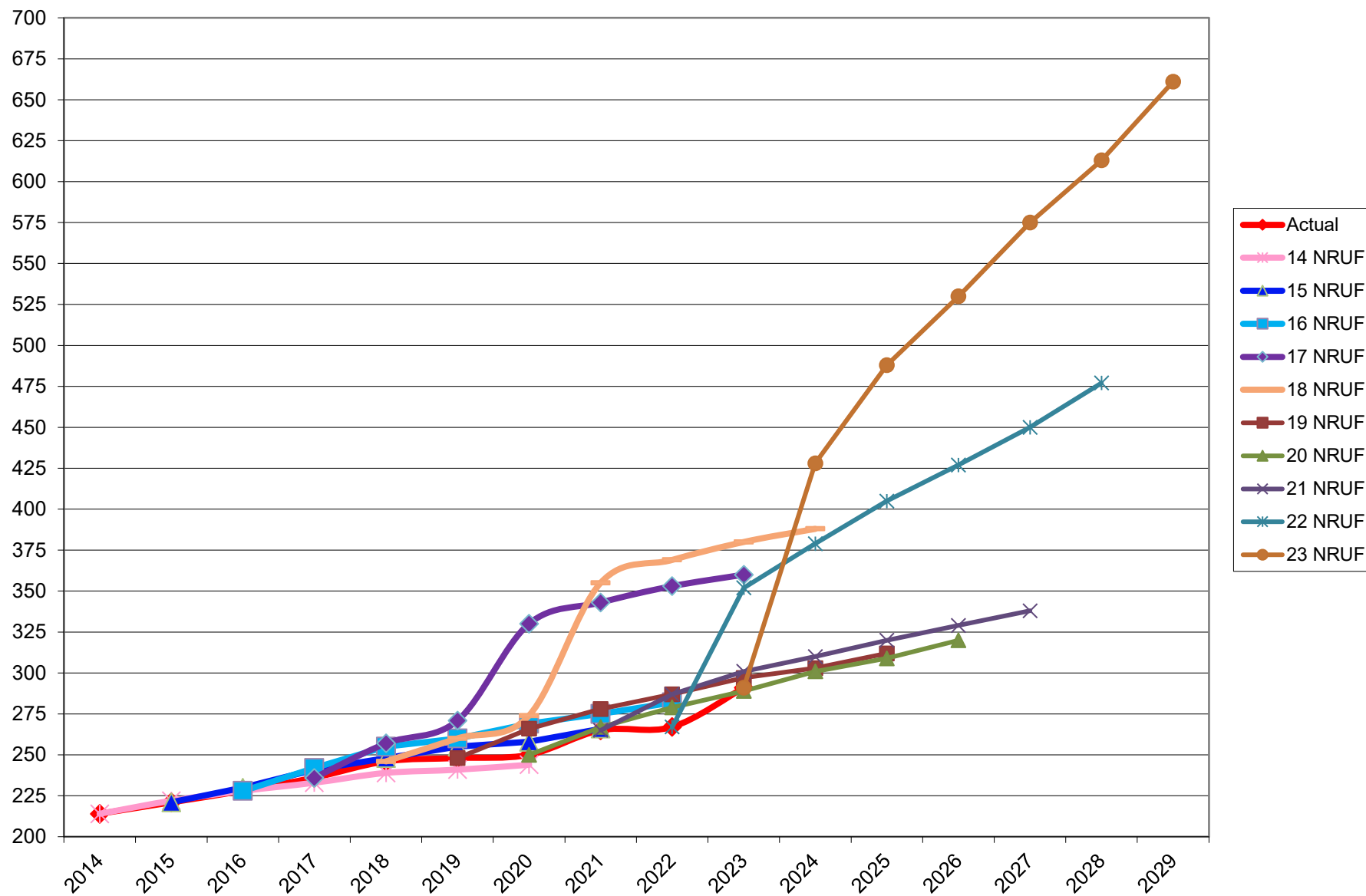
NPA 709/879 Newfoundland and Labrador



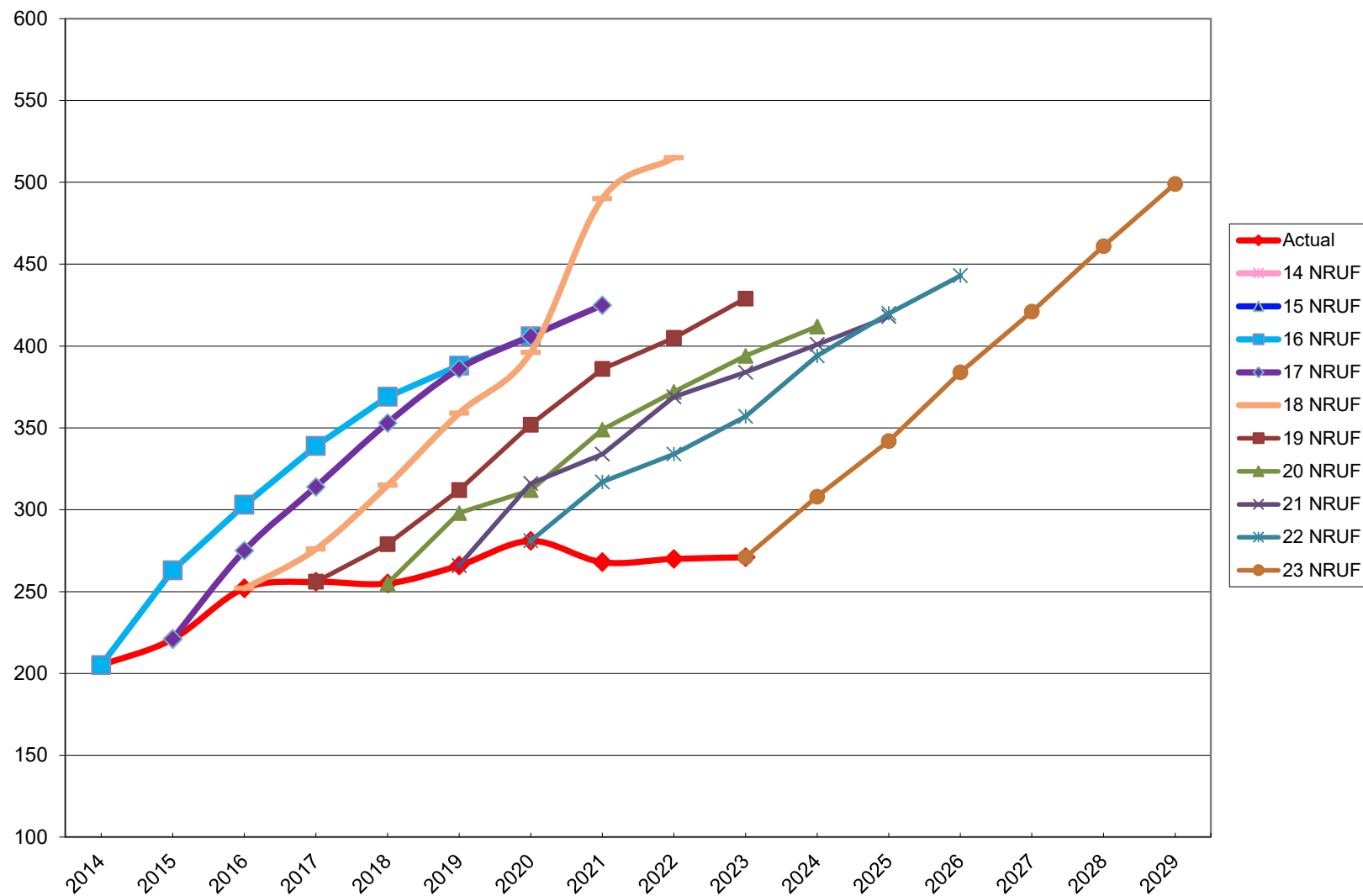
NPA 782/902 Nova Scotia-Prince Edward Island



NPA 807 Ontario



NPA 867 Northwest Territories-Nunavut-Yukon



Canadian Steering Committee on Numbering

12 October 2022

TRANSMITTED ELECTRONICALLY

Kelly T. Walsh
CNA Program Manager
Canadian Numbering Administrator (CNA)
COMsolve Inc.
150 Isabella St., Suite 605
Ottawa, Ontario K1S 1V7

**Subject: CSCN Direction to Canadian Numbering Administrator (CNA) re: the 2023
Numbering Resource Utilization Forecast (2023 NRUF) Methodology and
Assumptions**

On 12 October 2022, the Canadian Steering Committee on Numbering (CSCN) discussed and agreed to the direction for the CNA with respect to the 2023 NRUF Methodology and Assumptions.

The attached document contains the direction titled "CSCN Direction to CNA re: the 2023 NRUF Methodology and Assumptions, 12 October 2022".

Sincerely,

Original signed by

Kelly T. Walsh
CSCN Chair

c.c.: Bill Mason – CRTC staff
Michel Murray – CRTC staff

Attachment

**CSCN Direction to CNA re: the 2023 NRUF Methodology and Assumptions
12 October 2022**

**The CSCN submits the following methodology and assumptions to the CNA for
the 2023 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 2023, 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 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 unforecast demand. The CSCN recommends that the quantities identified by CRTC staff should be carried forward to the 2023 NRUF, except in NPAs where pools of CO Codes have been established for initial CO Code assignments, in which case the allowance for unforecast 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 Unforecast Demand based on CRTC staff letter, dated 16 Oct 2007 (http://cnac.ca/NRUF/NRUF.htm)	
NPA	Quantity of CO Codes
204/431	3
226/519/548	5
236/250/604/672/778	7
249/705	5
289/365/905	7
306/639	3
343/613	7
367/418/581	3
403/587/780/825	7
416/437/647	6
438/514	6
450/579	5
506	3
709	2
782/902	3
807	2
819/873	2
867	2

Where a Notice of Consultation (NoC) is currently in effect in an NPA complex, the number of CO Codes listed under “Quantity of CO Codes” in the table above is superceded by any quantities specified in the related NoC. That number may be further impacted by recent CO Code assignments from the new entrant pools.

CRTC Staff Allowance for Unforecast Demand based on NoC				
NPA	Quantity of CO Codes	Relief year (est. = estimated)	Allowance to be excluded from forecast 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
506	7	est. 2023	est. 2026	Notice 2016-206
709	2	TBD (see Telecom Decision CRTC 2021-13)	2 years after Relief Date	Notice 2016-205

The quantities of CO Codes in the above tables 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 seek guidance from CRTC staff and will advise the CSCN of the alternative method used. 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):

6 Year Average Growth of CO Codes per Year =

$$[(\text{Forecast Quantity of CO Codes in year six}) - (\text{Actual Quantity in 1 January of Current Year})]/6$$

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

5. The CNA shall provide for each NPA the total quantity of actual and forecast CO Codes and a breakdown of the quantity of “Unassignable CO Codes” as per section 3.7 of the CRTC-approved *Canadian Central Office Code (NXX) Assignment Guideline*, or as otherwise directed in writing by CRTC staff when the draft aggregate results are released, and in the subsequent 2023 NRUF Report to the CSCN after the aggregate results are finalized.
6. The “Administrative Codes” and “Stranded CO Codes” shall not be used in the calculation of the average annual future growth used for the 7- to 20-year projection.
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 unforecast 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 2043 timeframe, the CNA should exercise its best judgment in finalizing the forecast for those NPAs.