

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
November 2019

Security:			3-5/8% 30-Year TIPS	3-7/8% 30-Year TIPS	3-3/8% 30-1/2-Year TIPS	2-3/8% 20-1/2-Year TIPS
Description:			TIPS of April 2028	TIPS of April 2029	TIPS of April 2032	TIPS of January 2025
CUSIP Number:			912810FD5	912810FH6	912810FQ6	912810FR4
Dated Date:			April 15, 1998	April 15, 1999	October 15, 2001	July 15, 2004
Original Issue Date:			April 15, 1998	April 15, 1999	October 15, 2001	July 30, 2004
Additional Issue Date(s):			July 15, 1998	October 15, 1999 October 16, 2000		January 31, 2005 July 29, 2005
Maturity Date:			April 15, 2028	April 15, 2029	April 15, 2032	January 15, 2025
Ref CPI on Dated Date:			161.74000	164.39333	177.50000	188.49677
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
November 1 2019	256.55800	1.58624	1.56064	1.44540	1.36107	
November 2 2019	256.56470	1.58628	1.56068	1.44543	1.36111	
November 3 2019	256.57140	1.58632	1.56072	1.44547	1.36114	
November 4 2019	256.57810	1.58636	1.56076	1.44551	1.36118	
November 5 2019	256.58480	1.58640	1.56080	1.44555	1.36122	
November 6 2019	256.59150	1.58644	1.56084	1.44559	1.36125	
November 7 2019	256.59820	1.58649	1.56088	1.44562	1.36129	
November 8 2019	256.60490	1.58653	1.56092	1.44566	1.36132	
November 9 2019	256.61160	1.58657	1.56096	1.44570	1.36136	
November 10 2019	256.61830	1.58661	1.56100	1.44574	1.36139	
November 11 2019	256.62500	1.58665	1.56104	1.44577	1.36143	
November 12 2019	256.63170	1.58669	1.56108	1.44581	1.36146	
November 13 2019	256.63840	1.58673	1.56112	1.44585	1.36150	
November 14 2019	256.64510	1.58678	1.56116	1.44589	1.36154	
November 15 2019	256.65180	1.58682	1.56121	1.44593	1.36157	
November 16 2019	256.65850	1.58686	1.56125	1.44596	1.36161	
November 17 2019	256.66520	1.58690	1.56129	1.44600	1.36164	
November 18 2019	256.67190	1.58694	1.56133	1.44604	1.36168	
November 19 2019	256.67860	1.58698	1.56137	1.44608	1.36171	
November 20 2019	256.68530	1.58702	1.56141	1.44611	1.36175	
November 21 2019	256.69200	1.58707	1.56145	1.44615	1.36178	
November 22 2019	256.69870	1.58711	1.56149	1.44619	1.36182	
November 23 2019	256.70540	1.58715	1.56153	1.44623	1.36186	
November 24 2019	256.71210	1.58719	1.56157	1.44627	1.36189	
November 25 2019	256.71880	1.58723	1.56161	1.44630	1.36193	
November 26 2019	256.72550	1.58727	1.56165	1.44634	1.36196	
November 27 2019	256.73220	1.58731	1.56169	1.44638	1.36200	
November 28 2019	256.73890	1.58736	1.56174	1.44642	1.36203	
November 29 2019	256.74560	1.58740	1.56178	1.44645	1.36207	
November 30 2019	256.75230	1.58744	1.56182	1.44649	1.36210	
CPI-U (NSA) for:			July 2019 256.571	August 2019 256.558	September 2019 256.759	

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
November 2019

Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s):			2% 20-Year TIPS TIPS of January 2026 912810FS2 January 15, 2006 January 31, 2006 July 31, 2006	2-3/8% 20-Year TIPS TIPS of January 2027 912810PS1 January 15, 2007 January 31, 2007 July 31, 2007	1-3/4% 20-Year TIPS TIPS of January 2028 912810PV4 January 15, 2008 January 31, 2008 July 31, 2008	2-1/2% 20-Year TIPS TIPS of January 2029 912810PZ5 January 15, 2009 January 30, 2009 July 31, 2009	
Maturity Date: Ref CPI on Dated Date:			January 15, 2026 198.47742	January 15, 2027 201.66452	January 15, 2028 209.49645	January 15, 2029 214.69971	
Date			Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio
November	1	2019	256.55800	1.29263	1.27220	1.22464	1.19496
November	2	2019	256.56470	1.29266	1.27224	1.22467	1.19499
November	3	2019	256.57140	1.29270	1.27227	1.22471	1.19502
November	4	2019	256.57810	1.29273	1.27230	1.22474	1.19506
November	5	2019	256.58480	1.29277	1.27233	1.22477	1.19509
November	6	2019	256.59150	1.29280	1.27237	1.22480	1.19512
November	7	2019	256.59820	1.29283	1.27240	1.22483	1.19515
November	8	2019	256.60490	1.29287	1.27243	1.22487	1.19518
November	9	2019	256.61160	1.29290	1.27247	1.22490	1.19521
November	10	2019	256.61830	1.29293	1.27250	1.22493	1.19524
November	11	2019	256.62500	1.29297	1.27253	1.22496	1.19527
November	12	2019	256.63170	1.29300	1.27257	1.22499	1.19531
November	13	2019	256.63840	1.29304	1.27260	1.22503	1.19534
November	14	2019	256.64510	1.29307	1.27263	1.22506	1.19537
November	15	2019	256.65180	1.29310	1.27267	1.22509	1.19540
November	16	2019	256.65850	1.29314	1.27270	1.22512	1.19543
November	17	2019	256.66520	1.29317	1.27273	1.22515	1.19546
November	18	2019	256.67190	1.29320	1.27277	1.22518	1.19549
November	19	2019	256.67860	1.29324	1.27280	1.22522	1.19552
November	20	2019	256.68530	1.29327	1.27283	1.22525	1.19555
November	21	2019	256.69200	1.29331	1.27287	1.22528	1.19559
November	22	2019	256.69870	1.29334	1.27290	1.22531	1.19562
November	23	2019	256.70540	1.29337	1.27293	1.22534	1.19565
November	24	2019	256.71210	1.29341	1.27297	1.22538	1.19568
November	25	2019	256.71880	1.29344	1.27300	1.22541	1.19571
November	26	2019	256.72550	1.29347	1.27303	1.22544	1.19574
November	27	2019	256.73220	1.29351	1.27307	1.22547	1.19577
November	28	2019	256.73890	1.29354	1.27310	1.22550	1.19580
November	29	2019	256.74560	1.29358	1.27313	1.22554	1.19584
November	30	2019	256.75230	1.29361	1.27317	1.22557	1.19587
CPI-U (NSA) for:			July 2019 256.571	August 2019 256.558	September 2019 256.759		

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
November 2019

Date			Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
November	1	2019	256.55800	1.18642	1.18700	1.17641	1.17282	
November	2	2019	256.56470	1.18645	1.18703	1.17644	1.17285	
November	3	2019	256.57140	1.18648	1.18706	1.17647	1.17288	
November	4	2019	256.57810	1.18651	1.18709	1.17650	1.17291	
November	5	2019	256.58480	1.18654	1.18713	1.17653	1.17295	
November	6	2019	256.59150	1.18657	1.18716	1.17656	1.17298	
November	7	2019	256.59820	1.18660	1.18719	1.17660	1.17301	
November	8	2019	256.60490	1.18663	1.18722	1.17663	1.17304	
November	9	2019	256.61160	1.18666	1.18725	1.17666	1.17307	
November	10	2019	256.61830	1.18670	1.18728	1.17669	1.17310	
November	11	2019	256.62500	1.18673	1.18731	1.17672	1.17313	
November	12	2019	256.63170	1.18676	1.18734	1.17675	1.17316	
November	13	2019	256.63840	1.18679	1.18737	1.17678	1.17319	
November	14	2019	256.64510	1.18682	1.18740	1.17681	1.17322	
November	15	2019	256.65180	1.18685	1.18744	1.17684	1.17325	
November	16	2019	256.65850	1.18688	1.18747	1.17687	1.17328	
November	17	2019	256.66520	1.18691	1.18750	1.17690	1.17331	
November	18	2019	256.67190	1.18694	1.18753	1.17693	1.17334	
November	19	2019	256.67860	1.18697	1.18756	1.17696	1.17337	
November	20	2019	256.68530	1.18701	1.18759	1.17699	1.17340	
November	21	2019	256.69200	1.18704	1.18762	1.17703	1.17344	
November	22	2019	256.69870	1.18707	1.18765	1.17706	1.17347	
November	23	2019	256.70540	1.18710	1.18768	1.17709	1.17350	
November	24	2019	256.71210	1.18713	1.18771	1.17712	1.17353	
November	25	2019	256.71880	1.18716	1.18775	1.17715	1.17356	
November	26	2019	256.72550	1.18719	1.18778	1.17718	1.17359	
November	27	2019	256.73220	1.18722	1.18781	1.17721	1.17362	
November	28	2019	256.73890	1.18725	1.18784	1.17724	1.17365	
November	29	2019	256.74560	1.18728	1.18787	1.17727	1.17368	
November	30	2019	256.75230	1.18732	1.18790	1.17730	1.17371	
CPI-U (NSA) for:			July 2019	256.571	August 2019	256.558	September 2019	256.759

Security:	1-3/8% 10-Year TIPS	2-1/8% 30-Year TIPS	1-1/4% 10-Year TIPS	1-1/8% 10-Year TIPS
Description:	Series A-2020	TIPS of February 2040	Series D-2020	Series A-2021
CUSIP Number:	912828MF4	912810QF8	912828NM8	912828PP9
Dated Date:	January 15, 2010	February 15, 2010	July 15, 2010	January 15, 2011
Original Issue Date:	January 15, 2010	February 26, 2010	July 15, 2010	January 31, 2011
Additional Issue Date(s):	April 15, 2010	August 31, 2010	September 15, 2010 November 15, 2010	March 31, 2011 May 31, 2011
Maturity Date:	January 15, 2020	February 15, 2040	July 15, 2020	January 15, 2021
Ref CPI on Dated Date:	216.24610	216.13950	218.08532	218.75255

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
November 2019

Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s):			2-1/8% 30-Year TIPS TIPS of February 2041 912810QP6 February 15, 2011 February 28, 2011 June 30, 2011 October 31, 2011	0-5/8% 10-Year TIPS Series D-2021 912828QV5 July 15, 2011 July 29, 2011 September 30, 2011 November 30, 2011	0-1/8% 10-Year TIPS Series A-2022 912828SA9 January 15, 2012 January 31, 2012 March 30, 2012 May 31, 2012	0-3/4% 30-Year TIPS TIPS of February 2042 912810QV3 February 15, 2012 February 29, 2012 June 29, 2012 October 31, 2012
Maturity Date: Ref CPI on Dated Date:			February 15, 2041 218.99100	July 15, 2021 225.38381	January 15, 2022 226.33474	February 15, 2042 225.96062
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
November 1 2019	256.55800	1.17155	1.13832	1.13353	1.13541	
November 2 2019	256.56470	1.17158	1.13835	1.13356	1.13544	
November 3 2019	256.57140	1.17161	1.13838	1.13359	1.13547	
November 4 2019	256.57810	1.17164	1.13841	1.13362	1.13550	
November 5 2019	256.58480	1.17167	1.13843	1.13365	1.13553	
November 6 2019	256.59150	1.17170	1.13846	1.13368	1.13556	
November 7 2019	256.59820	1.17173	1.13849	1.13371	1.13559	
November 8 2019	256.60490	1.17176	1.13852	1.13374	1.13562	
November 9 2019	256.61160	1.17179	1.13855	1.13377	1.13565	
November 10 2019	256.61830	1.17182	1.13858	1.13380	1.13568	
November 11 2019	256.62500	1.17185	1.13861	1.13383	1.13571	
November 12 2019	256.63170	1.17188	1.13864	1.13386	1.13574	
November 13 2019	256.63840	1.17191	1.13867	1.13389	1.13577	
November 14 2019	256.64510	1.17194	1.13870	1.13392	1.13580	
November 15 2019	256.65180	1.17197	1.13873	1.13395	1.13583	
November 16 2019	256.65850	1.17200	1.13876	1.13398	1.13585	
November 17 2019	256.66520	1.17204	1.13879	1.13401	1.13588	
November 18 2019	256.67190	1.17207	1.13882	1.13404	1.13591	
November 19 2019	256.67860	1.17210	1.13885	1.13407	1.13594	
November 20 2019	256.68530	1.17213	1.13888	1.13410	1.13597	
November 21 2019	256.69200	1.17216	1.13891	1.13413	1.13600	
November 22 2019	256.69870	1.17219	1.13894	1.13416	1.13603	
November 23 2019	256.70540	1.17222	1.13897	1.13418	1.13606	
November 24 2019	256.71210	1.17225	1.13900	1.13421	1.13609	
November 25 2019	256.71880	1.17228	1.13903	1.13424	1.13612	
November 26 2019	256.72550	1.17231	1.13906	1.13427	1.13615	
November 27 2019	256.73220	1.17234	1.13909	1.13430	1.13618	
November 28 2019	256.73890	1.17237	1.13912	1.13433	1.13621	
November 29 2019	256.74560	1.17240	1.13915	1.13436	1.13624	
November 30 2019	256.75230	1.17243	1.13918	1.13439	1.13627	
CPI-U (NSA) for:	July 2019	256.571	August 2019	256.558	September 2019	256.759

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
November 2019

Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s):			0-1/8% 10-Year TIPS Series D-2022 912828TE0 July 15, 2012 July 31, 2012 September 28, 2012 November 30, 2012	0-1/8% 10-Year TIPS Series A-2023 912828UH1 January 15, 2013 January 31, 2013 March 28, 2013 May 31, 2013	0-5/8% 30-Year TIPS TIPS of February 2043 912810RA8 February 15, 2013 February 28, 2013 June 28, 2013 October 31, 2013	0-3/8% 10-Year TIPS Series D-2023 912828VM9 July 15, 2013 July 31, 2013 September 30, 2013 November 29, 2013
Maturity Date: Ref CPI on Dated Date:			July 15, 2022 229.96306	January 15, 2023 230.82203	February 15, 2043 229.91100	July 15, 2023 232.71797
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
November 1 2019	256.55800	1.11565	1.11150	1.11590	1.10244	
November 2 2019	256.56470	1.11568	1.11153	1.11593	1.10247	
November 3 2019	256.57140	1.11571	1.11156	1.11596	1.10250	
November 4 2019	256.57810	1.11574	1.11158	1.11599	1.10253	
November 5 2019	256.58480	1.11577	1.11161	1.11602	1.10256	
November 6 2019	256.59150	1.11579	1.11164	1.11605	1.10259	
November 7 2019	256.59820	1.11582	1.11167	1.11608	1.10261	
November 8 2019	256.60490	1.11585	1.11170	1.11611	1.10264	
November 9 2019	256.61160	1.11588	1.11173	1.11613	1.10267	
November 10 2019	256.61830	1.11591	1.11176	1.11616	1.10270	
November 11 2019	256.62500	1.11594	1.11179	1.11619	1.10273	
November 12 2019	256.63170	1.11597	1.11182	1.11622	1.10276	
November 13 2019	256.63840	1.11600	1.11185	1.11625	1.10279	
November 14 2019	256.64510	1.11603	1.11187	1.11628	1.10282	
November 15 2019	256.65180	1.11606	1.11190	1.11631	1.10284	
November 16 2019	256.65850	1.11609	1.11193	1.11634	1.10287	
November 17 2019	256.66520	1.11611	1.11196	1.11637	1.10290	
November 18 2019	256.67190	1.11614	1.11199	1.11640	1.10293	
November 19 2019	256.67860	1.11617	1.11202	1.11643	1.10296	
November 20 2019	256.68530	1.11620	1.11205	1.11646	1.10299	
November 21 2019	256.69200	1.11623	1.11208	1.11648	1.10302	
November 22 2019	256.69870	1.11626	1.11211	1.11651	1.10305	
November 23 2019	256.70540	1.11629	1.11214	1.11654	1.10308	
November 24 2019	256.71210	1.11632	1.11216	1.11657	1.10310	
November 25 2019	256.71880	1.11635	1.11219	1.11660	1.10313	
November 26 2019	256.72550	1.11638	1.11222	1.11663	1.10316	
November 27 2019	256.73220	1.11641	1.11225	1.11666	1.10319	
November 28 2019	256.73890	1.11644	1.11228	1.11669	1.10322	
November 29 2019	256.74560	1.11646	1.11231	1.11672	1.10325	
November 30 2019	256.75230	1.11649	1.11234	1.11675	1.10328	
CPI-U (NSA) for:	July 2019	256.571	August 2019	256.558	September 2019	256.759

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
November 2019

Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s):			0-5/8% 10-Year TIPS Series A-2024 912828B25 January 15, 2014 January 31, 2014 March 31, 2014 May 30, 2014	1-3/8% 30-Year TIPS TIPS of February 2044 912810RF7 February 15, 2014 February 28, 2014 June 30, 2014 October 31, 2014	0-1/8% 10-Year TIPS Series D-2024 912828WU0 July 15, 2014 July 31, 2014 September 30, 2014 November 28, 2014	0-1/4% 10-Year TIPS Series A-2025 912828H45 January 15, 2015 January 30, 2015 March 31, 2015 May 29, 2015
Maturity Date: Ref CPI on Dated Date:			January 15, 2024 233.33058	February 15, 2044 233.05900	July 15, 2024 237.44594	January 15, 2025 236.85403
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
November 1 2019	256.55800	1.09955	1.10083	1.08049	1.08319	
November 2 2019	256.56470	1.09958	1.10086	1.08052	1.08322	
November 3 2019	256.57140	1.09960	1.10089	1.08055	1.08325	
November 4 2019	256.57810	1.09963	1.10091	1.08057	1.08328	
November 5 2019	256.58480	1.09966	1.10094	1.08060	1.08330	
November 6 2019	256.59150	1.09969	1.10097	1.08063	1.08333	
November 7 2019	256.59820	1.09972	1.10100	1.08066	1.08336	
November 8 2019	256.60490	1.09975	1.10103	1.08069	1.08339	
November 9 2019	256.61160	1.09978	1.10106	1.08072	1.08342	
November 10 2019	256.61830	1.09981	1.10109	1.08074	1.08344	
November 11 2019	256.62500	1.09983	1.10112	1.08077	1.08347	
November 12 2019	256.63170	1.09986	1.10114	1.08080	1.08350	
November 13 2019	256.63840	1.09989	1.10117	1.08083	1.08353	
November 14 2019	256.64510	1.09992	1.10120	1.08086	1.08356	
November 15 2019	256.65180	1.09995	1.10123	1.08089	1.08359	
November 16 2019	256.65850	1.09998	1.10126	1.08091	1.08361	
November 17 2019	256.66520	1.10001	1.10129	1.08094	1.08364	
November 18 2019	256.67190	1.10004	1.10132	1.08097	1.08367	
November 19 2019	256.67860	1.10006	1.10135	1.08100	1.08370	
November 20 2019	256.68530	1.10009	1.10137	1.08103	1.08373	
November 21 2019	256.69200	1.10012	1.10140	1.08105	1.08376	
November 22 2019	256.69870	1.10015	1.10143	1.08108	1.08378	
November 23 2019	256.70540	1.10018	1.10146	1.08111	1.08381	
November 24 2019	256.71210	1.10021	1.10149	1.08114	1.08384	
November 25 2019	256.71880	1.10024	1.10152	1.08117	1.08387	
November 26 2019	256.72550	1.10027	1.10155	1.08120	1.08390	
November 27 2019	256.73220	1.10029	1.10158	1.08122	1.08393	
November 28 2019	256.73890	1.10032	1.10160	1.08125	1.08395	
November 29 2019	256.74560	1.10035	1.10163	1.08128	1.08398	
November 30 2019	256.75230	1.10038	1.10166	1.08131	1.08401	
CPI-U (NSA) for:	July 2019	256.571	August 2019	256.558	September 2019	256.759

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Ref CPI and Index Ratios for
November 2019

Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s):			0-3/4% 30-Year TIPS TIPS of February 2045 912810RL4 February 15, 2015 February 27, 2015 June 30, 2015 October 30, 2015	0-1/8% 5-Year TIPS Series X-2020 912828K33 April 15, 2015 April 30, 2015 August 31, 2015 December 31, 2015	0-3/8% 10-Year TIPS Series D-2025 912828XL9 July 15, 2015 July 31, 2015 September 30, 2015 November 30, 2015	0-5/8% 10-Year TIPS Series A-2026 912828N71 January 15, 2016 January 29, 2016 March 31, 2016 May 31, 2016
Maturity Date: Ref CPI on Dated Date:			February 15, 2045 235.48150	April 15, 2020 234.18067	July 15, 2025 237.14365	January 15, 2026 237.61129
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
November 1 2019	256.55800	1.08950	1.09556	1.08187	1.07974	
November 2 2019	256.56470	1.08953	1.09558	1.08190	1.07977	
November 3 2019	256.57140	1.08956	1.09561	1.08192	1.07979	
November 4 2019	256.57810	1.08959	1.09564	1.08195	1.07982	
November 5 2019	256.58480	1.08962	1.09567	1.08198	1.07985	
November 6 2019	256.59150	1.08965	1.09570	1.08201	1.07988	
November 7 2019	256.59820	1.08967	1.09573	1.08204	1.07991	
November 8 2019	256.60490	1.08970	1.09576	1.08207	1.07994	
November 9 2019	256.61160	1.08973	1.09578	1.08209	1.07996	
November 10 2019	256.61830	1.08976	1.09581	1.08212	1.07999	
November 11 2019	256.62500	1.08979	1.09584	1.08215	1.08002	
November 12 2019	256.63170	1.08982	1.09587	1.08218	1.08005	
November 13 2019	256.63840	1.08985	1.09590	1.08221	1.08008	
November 14 2019	256.64510	1.08987	1.09593	1.08223	1.08010	
November 15 2019	256.65180	1.08990	1.09596	1.08226	1.08013	
November 16 2019	256.65850	1.08993	1.09598	1.08229	1.08016	
November 17 2019	256.66520	1.08996	1.09601	1.08232	1.08019	
November 18 2019	256.67190	1.08999	1.09604	1.08235	1.08022	
November 19 2019	256.67860	1.09002	1.09607	1.08238	1.08025	
November 20 2019	256.68530	1.09004	1.09610	1.08240	1.08027	
November 21 2019	256.69200	1.09007	1.09613	1.08243	1.08030	
November 22 2019	256.69870	1.09010	1.09616	1.08246	1.08033	
November 23 2019	256.70540	1.09013	1.09619	1.08249	1.08036	
November 24 2019	256.71210	1.09016	1.09621	1.08252	1.08039	
November 25 2019	256.71880	1.09019	1.09624	1.08255	1.08041	
November 26 2019	256.72550	1.09022	1.09627	1.08257	1.08044	
November 27 2019	256.73220	1.09024	1.09630	1.08260	1.08047	
November 28 2019	256.73890	1.09027	1.09633	1.08263	1.08050	
November 29 2019	256.74560	1.09030	1.09636	1.08266	1.08053	
November 30 2019	256.75230	1.09033	1.09639	1.08269	1.08056	
CPI-U (NSA) for:	July 2019	256.571	August 2019	256.558	September 2019	256.759

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
November 2019

Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s):			1% 30-Year TIPS TIPS of February 2046 912810RR1 February 15, 2016 February 29, 2016 June 30, 2016 October 31, 2016	0-1/8% 5-Year TIPS Series X-2021 912828Q60 April 15, 2016 April 29, 2016 August 31, 2016 December 30, 2016	0-1/8% 10-Year TIPS Series D-2026 912828S50 July 15, 2016 July 29, 2016 September 30, 2016 November 30, 2016	0-3/8% 10-Year TIPS Series A-2027 912828V49 January 15, 2017 January 31, 2017 March 31, 2017 May 31, 2017
Maturity Date: Ref CPI on Dated Date:			February 15, 2046 236.94448	April 15, 2021 237.00700	July 15, 2026 239.70132	January 15, 2027 241.55919
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
November 1 2019	256.55800	1.08278	1.08249	1.07032	1.06209	
November 2 2019	256.56470	1.08281	1.08252	1.07035	1.06212	
November 3 2019	256.57140	1.08283	1.08255	1.07038	1.06215	
November 4 2019	256.57810	1.08286	1.08258	1.07041	1.06217	
November 5 2019	256.58480	1.08289	1.08260	1.07044	1.06220	
November 6 2019	256.59150	1.08292	1.08263	1.07046	1.06223	
November 7 2019	256.59820	1.08295	1.08266	1.07049	1.06226	
November 8 2019	256.60490	1.08297	1.08269	1.07052	1.06229	
November 9 2019	256.61160	1.08300	1.08272	1.07055	1.06231	
November 10 2019	256.61830	1.08303	1.08275	1.07058	1.06234	
November 11 2019	256.62500	1.08306	1.08277	1.07060	1.06237	
November 12 2019	256.63170	1.08309	1.08280	1.07063	1.06240	
November 13 2019	256.63840	1.08312	1.08283	1.07066	1.06242	
November 14 2019	256.64510	1.08314	1.08286	1.07069	1.06245	
November 15 2019	256.65180	1.08317	1.08289	1.07072	1.06248	
November 16 2019	256.65850	1.08320	1.08292	1.07074	1.06251	
November 17 2019	256.66520	1.08323	1.08294	1.07077	1.06254	
November 18 2019	256.67190	1.08326	1.08297	1.07080	1.06256	
November 19 2019	256.67860	1.08329	1.08300	1.07083	1.06259	
November 20 2019	256.68530	1.08331	1.08303	1.07085	1.06262	
November 21 2019	256.69200	1.08334	1.08306	1.07088	1.06265	
November 22 2019	256.69870	1.08337	1.08308	1.07091	1.06267	
November 23 2019	256.70540	1.08340	1.08311	1.07094	1.06270	
November 24 2019	256.71210	1.08343	1.08314	1.07097	1.06273	
November 25 2019	256.71880	1.08346	1.08317	1.07099	1.06276	
November 26 2019	256.72550	1.08348	1.08320	1.07102	1.06279	
November 27 2019	256.73220	1.08351	1.08323	1.07105	1.06281	
November 28 2019	256.73890	1.08354	1.08325	1.07108	1.06284	
November 29 2019	256.74560	1.08357	1.08328	1.07111	1.06287	
November 30 2019	256.75230	1.08360	1.08331	1.07113	1.06290	
CPI-U (NSA) for:	July 2019	256.571	August 2019	256.558	September 2019	256.759

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
November 2019

Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s):			0-7/8% 30-Year TIPS TIPS of February 2047 912810RW0 February 15, 2017 February 28, 2017 June 30, 2017 October 31, 2017	0-1/8% 5-Year TIPS Series X-2022 912828X39 April 15, 2017 April 28, 2017 August 31, 2017 December 29, 2017	0-3/8% 10-Year TIPS Series D-2027 9128282L3 July 15, 2017 July 31, 2017 September 29, 2017 November 30, 2017	0-1/2% 10-Year TIPS Series A-2028 9128283R9 January 15, 2018 January 31, 2018 March 29, 2018 May 31, 2018
Maturity Date: Ref CPI on Dated Date:			February 15, 2047 241.39250	April 15, 2022 243.19553	July 15, 2027 244.61839	January 15, 2028 246.66571
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
November 1 2019	256.55800	1.06283	1.05495	1.04881	1.04010	
November 2 2019	256.56470	1.06285	1.05497	1.04884	1.04013	
November 3 2019	256.57140	1.06288	1.05500	1.04886	1.04016	
November 4 2019	256.57810	1.06291	1.05503	1.04889	1.04019	
November 5 2019	256.58480	1.06294	1.05506	1.04892	1.04021	
November 6 2019	256.59150	1.06296	1.05508	1.04895	1.04024	
November 7 2019	256.59820	1.06299	1.05511	1.04897	1.04027	
November 8 2019	256.60490	1.06302	1.05514	1.04900	1.04029	
November 9 2019	256.61160	1.06305	1.05517	1.04903	1.04032	
November 10 2019	256.61830	1.06307	1.05519	1.04906	1.04035	
November 11 2019	256.62500	1.06310	1.05522	1.04908	1.04038	
November 12 2019	256.63170	1.06313	1.05525	1.04911	1.04040	
November 13 2019	256.63840	1.06316	1.05528	1.04914	1.04043	
November 14 2019	256.64510	1.06319	1.05530	1.04917	1.04046	
November 15 2019	256.65180	1.06321	1.05533	1.04919	1.04048	
November 16 2019	256.65850	1.06324	1.05536	1.04922	1.04051	
November 17 2019	256.66520	1.06327	1.05539	1.04925	1.04054	
November 18 2019	256.67190	1.06330	1.05541	1.04927	1.04057	
November 19 2019	256.67860	1.06332	1.05544	1.04930	1.04059	
November 20 2019	256.68530	1.06335	1.05547	1.04933	1.04062	
November 21 2019	256.69200	1.06338	1.05550	1.04936	1.04065	
November 22 2019	256.69870	1.06341	1.05552	1.04938	1.04067	
November 23 2019	256.70540	1.06344	1.05555	1.04941	1.04070	
November 24 2019	256.71210	1.06346	1.05558	1.04944	1.04073	
November 25 2019	256.71880	1.06349	1.05561	1.04947	1.04076	
November 26 2019	256.72550	1.06352	1.05563	1.04949	1.04078	
November 27 2019	256.73220	1.06355	1.05566	1.04952	1.04081	
November 28 2019	256.73890	1.06357	1.05569	1.04955	1.04084	
November 29 2019	256.74560	1.06360	1.05572	1.04958	1.04086	
November 30 2019	256.75230	1.06363	1.05574	1.04960	1.04089	
CPI-U (NSA) for:	July 2019	256.571	August 2019	256.558	September 2019	256.759

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
November 2019

Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s):			1% 30-Year TIPS TIPS of February 2048 912810SB5 February 15, 2018 February 28, 2018 June 29, 2018 October 31, 2018	0-5/8% 5-Year TIPS Series X-2023 9128284H0 April 15, 2018 April 30, 2018 August 31, 2018 December 31, 2018	0-3/4% 10-Year TIPS Series D-2028 912828Y38 July 15, 2018 July 31, 2018 September 28, 2018 November 30, 2018	0-7/8% 10-Year TIPS Series A-2029 9128285W6 January 15, 2019 January 31, 2019 March 29, 2019 May 31, 2019
Maturity Date: Ref CPI on Dated Date:			February 15, 2048 246.59650	April 15, 2023 248.39153	July 15, 2028 251.01658	January 15, 2029 252.50248
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
November 1 2019	256.55800	1.04040	1.03288	1.02208	1.01606	
November 2 2019	256.56470	1.04042	1.03290	1.02210	1.01609	
November 3 2019	256.57140	1.04045	1.03293	1.02213	1.01611	
November 4 2019	256.57810	1.04048	1.03296	1.02216	1.01614	
November 5 2019	256.58480	1.04050	1.03299	1.02218	1.01617	
November 6 2019	256.59150	1.04053	1.03301	1.02221	1.01619	
November 7 2019	256.59820	1.04056	1.03304	1.02224	1.01622	
November 8 2019	256.60490	1.04059	1.03307	1.02226	1.01625	
November 9 2019	256.61160	1.04061	1.03309	1.02229	1.01627	
November 10 2019	256.61830	1.04064	1.03312	1.02232	1.01630	
November 11 2019	256.62500	1.04067	1.03315	1.02234	1.01633	
November 12 2019	256.63170	1.04069	1.03317	1.02237	1.01635	
November 13 2019	256.63840	1.04072	1.03320	1.02240	1.01638	
November 14 2019	256.64510	1.04075	1.03323	1.02242	1.01641	
November 15 2019	256.65180	1.04078	1.03326	1.02245	1.01643	
November 16 2019	256.65850	1.04080	1.03328	1.02248	1.01646	
November 17 2019	256.66520	1.04083	1.03331	1.02250	1.01649	
November 18 2019	256.67190	1.04086	1.03334	1.02253	1.01651	
November 19 2019	256.67860	1.04089	1.03336	1.02256	1.01654	
November 20 2019	256.68530	1.04091	1.03339	1.02258	1.01657	
November 21 2019	256.69200	1.04094	1.03342	1.02261	1.01659	
November 22 2019	256.69870	1.04097	1.03344	1.02264	1.01662	
November 23 2019	256.70540	1.04099	1.03347	1.02266	1.01665	
November 24 2019	256.71210	1.04102	1.03350	1.02269	1.01667	
November 25 2019	256.71880	1.04105	1.03352	1.02272	1.01670	
November 26 2019	256.72550	1.04108	1.03355	1.02274	1.01672	
November 27 2019	256.73220	1.04110	1.03358	1.02277	1.01675	
November 28 2019	256.73890	1.04113	1.03361	1.02280	1.01678	
November 29 2019	256.74560	1.04116	1.03363	1.02282	1.01680	
November 30 2019	256.75230	1.04118	1.03366	1.02285	1.01683	
CPI-U (NSA) for:	July 2019	256.571	August 2019	256.558	September 2019	256.759

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
November 2019

Security:			1% 30-Year TIPS	0-1/2% 5-Year TIPS	0-1/4% 10-Year TIPS	
Description:			TIPS of February 2049	Series X-2024	Series D-2029	
CUSIP Number:			912810SG4	9128286N5	9128287D6	
Dated Date:			February 15, 2019	April 15, 2019	July 15, 2019	
Original Issue Date:			February 28, 2019	April 30, 2019	July 31, 2019	
Additional Issue Date(s):			August 30, 2019	June 28, 2019	September 30, 2019	
Maturity Date:			February 15, 2049	April 15, 2024	July 15, 2029	
Ref CPI on Dated Date:			251.63550	252.20853	255.79368	
Date			Ref CPI	Index Ratio	Index Ratio	Index Ratio
November	1	2019	256.55800	1.01956	1.01725	1.00299
November	2	2019	256.56470	1.01959	1.01727	1.00301
November	3	2019	256.57140	1.01962	1.01730	1.00304
November	4	2019	256.57810	1.01964	1.01733	1.00307
November	5	2019	256.58480	1.01967	1.01735	1.00309
November	6	2019	256.59150	1.01970	1.01738	1.00312
November	7	2019	256.59820	1.01972	1.01740	1.00315
November	8	2019	256.60490	1.01975	1.01743	1.00317
November	9	2019	256.61160	1.01978	1.01746	1.00320
November	10	2019	256.61830	1.01980	1.01748	1.00322
November	11	2019	256.62500	1.01983	1.01751	1.00325
November	12	2019	256.63170	1.01985	1.01754	1.00328
November	13	2019	256.63840	1.01988	1.01756	1.00330
November	14	2019	256.64510	1.01991	1.01759	1.00333
November	15	2019	256.65180	1.01993	1.01762	1.00335
November	16	2019	256.65850	1.01996	1.01764	1.00338
November	17	2019	256.66520	1.01999	1.01767	1.00341
November	18	2019	256.67190	1.02001	1.01770	1.00343
November	19	2019	256.67860	1.02004	1.01772	1.00346
November	20	2019	256.68530	1.02007	1.01775	1.00349
November	21	2019	256.69200	1.02009	1.01778	1.00351
November	22	2019	256.69870	1.02012	1.01780	1.00354
November	23	2019	256.70540	1.02015	1.01783	1.00356
November	24	2019	256.71210	1.02017	1.01786	1.00359
November	25	2019	256.71880	1.02020	1.01788	1.00362
November	26	2019	256.72550	1.02023	1.01791	1.00364
November	27	2019	256.73220	1.02025	1.01794	1.00367
November	28	2019	256.73890	1.02028	1.01796	1.00370
November	29	2019	256.74560	1.02031	1.01799	1.00372
November	30	2019	256.75230	1.02033	1.01802	1.00375
CPI-U (NSA) for:			July 2019 256.571	August 2019 256.558	September 2019 256.759	