

# IT'S FIVE O'CLOCK EVERYWHERE: A FRAMEWORK FOR THE MODERNIZATION OF TIME

## INTRODUCTION

Twenty-six minutes into the premiere of Season Four of *The West Wing*, an already bad day for three presidential aides gets even worse.<sup>1</sup> The trio is attempting to reach Air Force One before it takes off at 1:00 p.m., and since it is already 12:45 p.m. when they are three miles away, time is tight. However, their situation becomes hopeless when they learn that it is actually 1:45 p.m.—local time changed when they crossed county lines<sup>2</sup> and they had already missed their flight.<sup>3</sup> Despite reassurance from a local campaign volunteer that “it’s a common mistake,”<sup>4</sup> the high-level government officials are incredulous, referring to the American time-zone scheme as a “schmuck-ass system”<sup>5</sup> and asking, “What, do people just reset their watches when they commute? They just change their watches every time they cross a time zone? What is this, a joke?”<sup>6</sup> The scene ends with one character beating a highway guardrail with a stick in frustration.<sup>7</sup>

This episode, which aired in 2002, already has characteristics that seem quaint in light of contemporary social changes, such as the characters’ reliance on cable news and local newspapers in their attempt to ascertain

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1. *The West Wing: 20 Hours in America: Part I* (NBC television broadcast Sept. 25, 2002) (transcript on file with the Washington University Law Review).

2. The characters “crossed over from Unionville into Dearborn County,” and one of the two counties did not observe daylight savings time (DST). *Id.* For Dearborn County to have been one hour ahead, it must have been the county observing eastern daylight time (EDT) at the time of the episode, though the characters in the episode are unclear about which part of Indiana was observing which time. *Id.* The confusion among the characters reflects the reality that the reporting of time zones is often ambiguous and inconsistent from source to source. The Bluebook offers no information on how to cite time zones in legal writing, so this Note cites time exactly as it appears on different web sites. This Note ultimately cites times listed in seven different zones (ET, PST, EDT, CST, CDT, PDT, and EST, in order), as well as several times that provide no zone designation.

3. The time change at issue in the episode has since been resolved through a controversial 2005 bill that instituted DST statewide by a 51-49 vote. *How Indiana Went from ‘God’s Time’ to Split Zones and Daylight-Saving*, INDYSTAR (Nov. 27, 2018, 2:33 PM ET), <https://www.indystar.com/story/news/politics/2018/11/27/indianapolis-indiana-time-zone-history-central-eastern-daylight-savings-time/2126300002/> [<https://perma.cc/7MUY-ALEG>]. Indiana counties are split among eastern and central time, so such a travel complication could still affect a hapless traveler. *See infra* Part II.

4. *The West Wing*, *supra* note 1.

5. *Id.*

6. *Id.*

7. *Id.* For a more fictionalized example of time-switching challenges in mid-2000s television, *see Arrested Development: For British Eyes Only* (Fox television broadcast Sept. 26, 2005) (transcript on file with the Washington University Law Review) (closing a government office at 8 p.m. in the middle of California’s solar day because the fictional “Wee Britain” enclave in Orange County, California observes Greenwich Mean Time (GMT)).

what is happening outside of rural Indiana.<sup>8</sup> But even two decades ago, the characters on *The West Wing* were forced to interact with a timekeeping system that had failed to keep pace with social change—one that remains largely unchanged today.<sup>9</sup> Increased connectivity and interaction across long distances has resulted in a growing number of people who “just change their watches every time they cross a time zone,”<sup>10</sup> whether virtually or physically, as they coordinate professional and personal interactions with others living hundreds or thousands of miles away.<sup>11</sup> In the best-case scenario, the current system of time organization creates an archaic and omnipresent burden on long-distance interactions that requires regular time switching<sup>12</sup> with no compelling justification beyond cultural inertia. In the worst, it ruins presidential travel plans and leaves its victims beating a highway guardrail with a stick.

This Note discusses existing legal procedures by which the current system of time could be modified to adapt to contemporary social changes and reduce time switching.<sup>13</sup> Part I describes how the current system of

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8. *The West Wing*, *supra* note 1.

9. This was in fact the second episode in which the show confronted the confusion of the current time-zone system. In an episode that aired two seasons earlier, characters spent substantial time ascertaining what time it was in Japan, ultimately determining that the President would land in Washington one hour before he took off in Tokyo. *The West Wing: Ellie* (NBC television broadcast Feb. 21, 2001) (transcript on file with the Washington University Law Review).

10. In a literal sense this is less true than ever, since modern cell phones with location services will update times automatically as time zones change. Wristwatch use began declining almost immediately upon the proliferation of cell phones. See David Ho, *Is the Cell Phone Killing the Wristwatch?*, VIRGINIAN-PILOT (Nov. 3, 2008, 12:00 AM), [https://www.pilotonline.com/business/article\\_1c95b085-f9f8-5911-9349-c58ea8d91e6b.html](https://www.pilotonline.com/business/article_1c95b085-f9f8-5911-9349-c58ea8d91e6b.html). Wristwatches that are still used today are increasingly likely to source their time from cell phones. Steven Musil, *One in 10 American Adults Expected to Have a Smartwatch Next Year*, CNET (Dec. 13, 2018, 3:00 AM PST), <https://www.cnet.com/news/one-in-10-american-adults-expected-to-have-a-smartwatch-next-year/> [<https://perma.cc/7354-9H8Z>].

11. See *infra* notes 29–31.

12. “Time switching” is a term most frequently used in connection with the DST clock change. In this Note it is used as a generic term to refer to events or circumstances that require an individual to disrupt their ongoing twenty-four-hour day.

13. Demand is growing for a reduction in the number of time zones despite a lack of firm consensus on a next step. See, e.g., Tim Harford, *EST. CST. MST. PST. Not! Would the United States Be Better Off with Only One Time Zone?*, SLATE (Oct. 28, 2006, 7:16 AM), <https://slate.com/culture/2006/10/would-the-united-states-be-better-off-with-only-one-time-zone.html> (suggesting a single United States time zone to better coordinate the population) [<https://perma.cc/E3S2-HLSZ>]; Allison Schrage, *America Needs to Have Just Two Time Zones and the World Should Follow Suit*, QUARTZ (Mar. 7, 2015), <https://qz.com/357823/america-needs-to-have-just-two-time-zones-and-the-world-should-follow-suit/> [<https://perma.cc/2NZ3-BWWB>] (suggesting a reorganization into an Eastern and Western time zone for the United States and “10 to 12 time zones” worldwide); James Gleick, *Time to Dump Time Zones*, N.Y. TIMES (Nov. 5, 2016), <https://www.nytimes.com/2016/11/06/opinion/sunday/time-to-dump-time-zones.html> [<https://perma.cc/SX6N-CU8G>] (suggesting a move to one global time zone); Steve H. Hanke & Richard Conn Henry, *Changing Times*, CATO INST. (Dec. 19, 2011), <https://www.cato.org/publications/commentary/changing-times> [<https://perma.cc/2YP5-ZVFP>] (suggesting a move to one global time zone accompanied by a new calendar). See also Michael Stroh, *Keeping Time to the Same 'Beat'*, BALT. SUN (Apr. 8, 1999), <https://www.baltimoresun.com/news/bs-xpm-1999-04-08-99040>

timekeeping evolved and explains why it results in frequent time switching today. Part II considers the effectiveness of ongoing efforts by localities and states to avoid time switching by moving to a more favorable time zone. Part III evaluates attempts by state legislatures to minimize time switching by eliminating Daylight Saving Time (DST). Part IV briefly discusses the current international time zone scheme and contemporary contexts in which universal time is used on a global scale, suggesting that it offers a better model for a time-zone system in the United States. This Note ultimately argues in Part V that the United States should establish one permanent national time zone.

#### I. FROM SOLAR TO STANDARD: THE TRANSITION FROM LOCAL TO GLOBAL TIME

Timekeeping in the United States has become increasingly standardized as society has evolved and grown more interconnected. Originally, time was a purely local matter, as the difficulty of long-range travel minimized the importance of coordinating time from place to place and allowed communities to effectively function using solar time.<sup>14</sup> But as long-range railway travel became easier and more prevalent, the need for a regionally standardized form of time measurement increased,<sup>15</sup> culminating in the passage of the Federal Standard Time Act in 1918.<sup>16</sup> The Federal Standard Time Act authorized the Interstate Commerce Commission to establish time-zone boundaries, which were set in roughly the configuration used today.<sup>17</sup> Congress updated the federal system of time with the Uniform

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80326-story.html [https://perma.cc/F44U-THN6] (discussing watch company Swatch's since-abandoned attempt to establish "Internet time," consisting of a universal system of 1,000 "beats" per day, each lasting 86.4 seconds).

14. Each town typically had an official clock, which was frequently calibrated so that noon matched the time where the sun was at its highest point. Matt Rosenberg, *The History and Use of Time Zones*, THOUGHTCO. (Apr. 2, 2017), <https://www.thoughtco.com/what-are-time-zones-1435358> [https://perma.cc/4TYP-4W7U] ("Travel between cities meant having to change one's pocket watch upon arrival.").

15. See Planet Money, *The Day of Two Noons*, NPR (June 7, 2019), <https://www.npr.org/2019/06/07/730727038/episode-918-the-day-of-two-noons> for background on the initial steps toward the standardization of time in 1883.

16. Federal Standard Time Act, ch. 24, 40 Stat. 450 (1918) (codified as amended at 15 U.S.C. § 261). The Federal Standard Time Act was itself Congress' codification of the "standard railroad time" system originally developed by the American Railway Association, which took effect on November 18, 1883. Wayne H. Knight, Note, *Standard Time in the United States*, 5 GEO. WASH. L. REV. 779, 780 (1937). Knight's Note, which was published 83 years ago, is one of two academic articles on American time law. See also Jenni Parrish, *Litigating Time in America at the Turn of the Twentieth Century*, 36 AKRON L. REV. 1 (2002) (discussing litigation on issues of time from 1870 to 1920).

17. Time-zone boundaries were fixed near the 82nd, 97th, and 112th West meridians, Knight, *supra* note 16, at 784 n.16, with precise breaking points set west of the meridian in less-populated areas. *Id.* at 784.

Time Act of 1966,<sup>18</sup> which shifted authority for determining time-zone boundaries to the Department of Transportation and enacted a nationwide system of DST.<sup>19</sup> The Uniform Time Act framework for time zones is still active in the United States, but was amended in the twenty-first century by the Energy Policy Act of 2005,<sup>20</sup> which extended the length of DST.<sup>21</sup> Besides the uniform federal adoption and subsequent extension of DST (along with minor adjustments to time-zone boundaries),<sup>22</sup> our time-zone system has remained largely the same since 1918.

The contiguous forty-eight states are divided into the eastern, central, mountain, and Pacific time zones, which are offset behind coordinated universal time (UTC) by five, six, seven, and eight hours, respectively, when DST is not in effect.<sup>23</sup> Beyond these, five additional American time zones are proscribed by statute (Atlantic, Alaska, Hawaii-Aleutian, Samoa, and Chamorro), ranging from eleven hours behind UTC (Samoa) to ten hours ahead (Chamorro), giving the United States a maximum of twenty-one hours of time difference between its territories.<sup>24</sup> Even these nine time zones do not exhaustively govern areas under United States jurisdiction, as members of the military stationed in other countries remain controlled by federal law and are subject to the prevailing time zone in their host nation.<sup>25</sup> The variety of time-zone options present in the United States is presumably intended to ensure that sunlight hours are aligned with clock time across the country. But sunrise and sunset times vary across latitude, altitude, and even longitude within a time zone—as well as in a given place from season to season.<sup>26</sup> More specifically, our system of time zones is meant to ensure that solar noon—the midpoint between sunrise and sunset—is somewhat close

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18. Uniform Time Act, Pub. L. No. 89-387, 80 Stat. 107 (1966) (codified as amended at 15 U.S.C. §§ 260–63 (2018)).

19. The Uniform Time Act also addresses the growth in the geographic footprint of the United States territories, with nine time zones contemplated by the act. *See infra* notes 23–25 and accompanying text. *See infra* Part III for further discussion of the rationale for DST.

20. Energy Policy Act, Pub. L. No. 109-58, 119 Stat. 594 (2005) (codified at 15 U.S.C. § 260a).

21. DST now begins on the second Sunday of March and ends on the first Sunday of November. For further discussion on the history and evolution of daylight saving up to the passage of the Energy Policy Act, see generally DAVID PRERAU, *SEIZE THE DAYLIGHT: THE CURIOUS AND CONTENTIOUS STORY OF DAYLIGHT SAVING TIME* (2005).

22. *See infra* Part II.

23. 15 U.S.C. §§ 261, 263. *See also infra* Part IV.

24. *Id.* For current United States time-zone boundaries, see 49 C.F.R. §§ 71.1–.14 (2013).

25. *See Sunday v. Madigan*, 301 F.2d 871, 875 (9th Cir. 1962) (holding that the Uniform Code of Military Justice, with an effective date of May 31, 1951, became effective in Korea after midnight Korean standard time even though it was still May 30 in the contiguous United States).

26. Jaime McLeod, *Not All Sunrises Are Created Equal*, FARMER'S ALMANAC (Nov. 22, 2015), <https://www.farmersalmanac.com/not-all-sunrises-are-created-equal-11611> [<https://perma.cc/KB7X-ZLRT>].

to 12:00 p.m. everywhere in the country, a goal that has been accomplished with reasonable accuracy.<sup>27</sup>

The tradeoff for a system that ensures the sun is at its highest point sometime around 12:00 p.m. is time switching.<sup>28</sup> Residents of the United States are forced to deal with regular time switching on two fronts. The first front for time switching is in interstate or international interactions. Anyone who regularly deals with another person in a different time zone is forced to time switch when coordinating mutual times, and social changes have resulted in more frequent switched-time interactions with family members,<sup>29</sup> mass media,<sup>30</sup> and coworkers.<sup>31</sup> The COVID-19 pandemic has hastened this shift toward increased interactions across distance by limiting localized gatherings<sup>32</sup> and inducing employers to accept a dramatic expansion in remote work.<sup>33</sup>

The second front for time switching is DST,<sup>34</sup> which affects even those who only interact with time on a local level.<sup>35</sup> For the residents of forty-

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27. See NOAA, *NOAA Solar Calculator*, <https://www.esrl.noaa.gov/gmd/grad/solcalc/> [<https://perma.cc/HXG2-UPMC>]. Most cities investigated had a consistent solar noon between 11:45 a.m. and 12:45 p.m. However, considering that time zones chiefly serve to maintain a consistent solar noon, there are very few cities in which solar noon occurs exactly at 12:00 PM.

28. See *supra* note 12.

29. Nick Strayer, *The Great Out-of-State Migration: Where Students Go*, N.Y. TIMES (Aug. 26, 2016), <https://www.nytimes.com/interactive/2016/08/26/us/college-student-migration.html> [<https://perma.cc/E7ZR-82PC>] (“[T]he number of out-of-state freshmen attending [public colleges and universities] has nearly doubled since 1986, according to Department of Education data.”).

30. Daniel S. Hamermesh, Caitlin Knowles Myers & Mark L. Pocock, *Cues for Timing and Coordination: Latitude, Letterman, and Longitude*, 26 J. LAB. ECON. 223, 230–34 (2008) (describing differences in localized sleep patterns and work schedules due to differences in television schedules in each time zone).

31. Sue Balint, *Managing Software Development Within a Virtual Project Environment*, in CONTEMPORARY TRENDS IN SYSTEMS DEVELOPMENT 185 (Maung K. Sein et al. eds., 2001) (describing increased temporal dispersion within software development teams).

32. Holly Yan, *Why a 2nd Shutdown Over Coronavirus Might Be Worse than the 1st—And How to Prevent It*, CNN (June 25, 2020, 8:50 AM ET), <https://www.cnn.com/2020/06/15/us/covid-19-second-shutdown/index.html> [<https://perma.cc/6ET5-ADVM>].

33. Clive Thompson, *What If Working from Home Goes on . . . Forever?*, N.Y. TIMES (June 9, 2020), <https://www.nytimes.com/interactive/2020/06/09/magazine/remote-work-covid.html> [<https://perma.cc/K2GF-N9ZV>].

34. DST is sometimes referred to as “fast time.” Fast time also refers to other instances where residents observe a time zone ahead of their own, such as when towns within the boundaries of the central time zone observe eastern time for the sake of economic coordination. See, e.g., *Vinson v. Credit Control Servs.*, 908 F. Supp. 2d 274, 276 (D. Mass. 2012).

35. Although anyone who uses the Internet ostensibly interacts with time across zones, roughly 10% of U.S. adults do not use the Internet and might only interact with time at a local level. Monica Anderson, Andrew Perrin, Jingjing Jiang & Madhumitha Kumar, *10% of Americans Don't Use the Internet. Who Are They?*, PEW RSCH. CTR. (Apr. 22, 2019), <https://www.pewresearch.org/fact-tank/2019/04/22/some-americans-dont-use-the-internet-who-are-they/> [<https://perma.cc/9RPG-9DEA?type=image>]. This is a significant drop from the 48% of American adults that did not use the Internet in 2000, and Internet use rates are near-universal for people below the age of 50. Only 3% of adults aged 30–49 in 2019 did not use the Internet, while 0% of adults aged 18–29 did not use the Internet. *Id.* The percentage of the population who can claim to only interact with persons in their same time zone is rapidly shrinking.

eight states,<sup>36</sup> time switching takes place on a seasonal basis as the clocks “spring forward” to DST in March and “fall back” to standard time in November. This effectively doubles the number of time zones by requiring a distinction between a zone’s standard time (xST) and a zone’s DST time (xDT).<sup>37</sup>

The regularity of time switching required by citizens in an increasingly globalized world necessitates a simplification of prevailing time systems.<sup>38</sup> Discontent with current time zones can be found at all levels of government, and this Note will discuss methods by which government entities seek to optimize timekeeping at all levels, from local to international. As this Note will demonstrate, the optimal evolution of timekeeping in the United States would move the country to one permanent national time zone and wholly eliminate the harms associated with time switching.

## II. LOCALIZED REPOSITIONING OF TIME-ZONE BOUNDARIES

Localities near time-zone boundaries are the most likely to be burdened by the current system of time zones, since residents of one town will necessarily use a different time than businesses or other institutions in a neighboring town. Although time-zone boundaries cut through some significant metropolitan areas,<sup>39</sup> rural residents are more likely to be affected.<sup>40</sup> Official times also carry greater significance at the local level, because citizens are more likely to directly interact with their local

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36. Every state observes DST except for Hawaii and Arizona (though Navajo territory within Arizona does observe DST). Jamie Ducharme, *The Reason Some States Don't Observe Daylight Saving Time*, TIME (Nov. 4, 2017, 6:00 AM EDT), <https://time.com/5005600/states-without-daylight-savings-time/> [<https://perma.cc/V5E5-PKYY>]. This non-observance of DST alters the relationship that time in these states has with the other forty-eight states, providing an additional layer of difficulty to interstate time switching. See *infra* Part III.

37. These times are frequently designated inappropriately because there is a tendency to default to describing a given time in “standard time” even though standard time is not in effect for most of the year. States are inconsistent on whether “standard time” refers to the time currently in effect (whether xST or xDT) or whether it refers to xST only, even within the same time zone. Compare *Nev. Mining Ass’n v. Erdoes*, 26 P.3d 753 (Nev. 2001) (holding that “Midnight Pacific standard time” in the Nevada constitution was equivalent to 1:00 a.m. when DST was in effect) with *Miracle Auto Ctr. v. Superior Ct.*, 80 Cal. Rptr. 2d 587, 587–89 (Cal. Ct. App. 1998) (holding that an insurance policy with a cancellation made effective “on 6/29/97 at 12:01 A.M. standard time” was cancelled when a fire was discovered on 6/29/97 at 12:49 A.M. PDT (or, what would be 6/28/97 11:49 P.M. PST if standard time was in effect)). This difference in state interpretation means that during DST, “12:01 standard time” refers to a different legal time in Nevada and California even though both states are within the Pacific time zone.

38. Minimizing the need for time switching at each railroad station was a key impetus behind the federal standardization of time. See Knight, *supra* note 16, at 779–80.

39. Significant United States metropolitan areas near time zone boundaries include Chattanooga, Tennessee; Louisville, Kentucky; and Bismarck, North Dakota.

40. Knight, *supra* note 16, at 784.

government than with the state or federal government.<sup>41</sup> Beyond coordination concerns, localities on the eastern side of time-zone boundaries are more likely to suffer from a host of health and economic disadvantages compared to localities on the western side, primarily because the later sunset times on the eastern side reduce the amount of sleep individuals tend to get.<sup>42</sup>

A state or locality may wish to modify a time-zone boundary for two reasons. The first is to consolidate an administrative unit such as a county into a single time zone.<sup>43</sup> The second is for a locality to move its time zone toward that of a neighboring economic center that exerts significant influence.<sup>44</sup> A state or locality that wishes to move a time-zone boundary for either of these purposes can request a boundary change from the United States Secretary of Transportation, who is empowered to grant exemptions or realignments of time-zone limits.<sup>45</sup> This structure of authority reflects the increased federal control of time in contrast to the Interstate Commerce Commission's role under the earlier Federal Standard Time Act, which gave deference to state governments to set prevailing time.<sup>46</sup> Courts have permissively interpreted the form that a time-zone-boundary request may

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41. *State & Local Government*, THE WHITE HOUSE, <https://www.whitehouse.gov/about-the-white-house/state-local-government/> [<https://perma.cc/PL72-BMPZ>].

42. Osea Giuntella & Fabrizio Mazzonna, *Sunset Time and the Economic Effects of Social Jetlag: Evidence from US Time Zone Borders* 3–4 (Univ. of Pitt. Dep't of Econ., Working Paper No. 17/009, 2017).

43. Current time zone lines are largely oriented to follow existing county lines, but some counties are divided into multiple time zones, which complicates administration of local government services. *See generally* GULF CNTY., FLA. CLERK OF COURT, <https://gulfclerk.com/> [<https://perma.cc/Y2CV-5PPZ>] (listing hours of court offices in different municipalities within Gulf County, Florida in both eastern and central time to accommodate differences across the county); *Clerk of District Court*, WELCOME TO CHERRY CNTY., NEB., [https://co.cherry.ne.us/webpages/district\\_court/district\\_court.html](https://co.cherry.ne.us/webpages/district_court/district_court.html) [<https://perma.cc/F8G3-JEVC>] (listing hours of court offices without specifying time zone, despite the fact that the majority of Cherry County, Nebraska is within the mountain time zone instead of the central time zone used at the location of the court in Valentine).

44. *See, e.g.*, Brock Parker, *Alabama: Eastern Time Zone?*, WTVM 9 (Apr. 4, 2005, 9:14 PM EDT), <https://www.wtvm.com/story/3165089/alabama-eastern-time-zone/> (discussing a proposal to move all of Alabama into the eastern time zone). The author mentions that several communities in Eastern Alabama are already using eastern time. *Id.* However, courts have held that these local adoptions of a different time zone are not official for purposes of interpreting federal law. *Vinson v. Credit Control Servs.*, 908 F. Supp. 2d 274, 276–77 (D. Mass. 2012).

45. Exec. Order No. 11,751, 38 Fed. Reg. 34,725 (Dec. 15, 1973).

46. “Standard Time Zone Investigation,” 274 INTERSTATE COM. COMM’N REP. 695, 701 (1949) (“Under the interpretation of the United States Supreme Court in *Massachusetts State Grange v. Benton*, 272 U.S. 525, the scope of the Federal act is restricted to a very narrow field. It does not govern the multitude of daily transactions, except the movements of interstate common carriers and acts of Federal officers or departments or others under Federal laws. The authority to fix the time to govern local transactions still lies with the State, or, if the State law permits, with municipal governments.”).

take, allowing popular referendum<sup>47</sup> or judicial interpretation<sup>48</sup> to count under the statute. However, the organization of the Uniform Time Act indicates that any appeal by a state or locality is only a prerequisite for federal action.<sup>49</sup>

Localized time-zone consolidation was common in the early years of standard time but has declined in frequency as the Interstate Commerce Commission unified most large population centers into one time zone prior to the passage of the Uniform Time Act.<sup>50</sup> The lack of metropolitan time-unification efforts today can also be attributed to proactive efforts by residents of divided communities to merge their time zones after the passage of the Federal Standard Time Act but prior to the Uniform Time Act, giving most communities fairly rational time-zone boundaries.<sup>51</sup>

Contemporary efforts by localities are usually intended to effect the second form of time change and move to the time zone of a significant geographic neighbor. A notable example comes from West Wendover, Nevada, which moved into the mountain time used in Utah rather than the Pacific time used in the rest of Nevada.<sup>52</sup> West Wendover presented several factors that were extremely conducive for a time-zone change. The town is located more than a hundred miles from any notable population center, lies directly on a time-zone boundary at the Utah-Nevada state line, and relies on facilities in Utah for transportation services and media.<sup>53</sup> The town also had a history of common usage of mountain time, near-unanimous support from surveyed residents, and testimony that “99 percent of the people in

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47. Kanagur v. Hare, 284 F. Supp. 426 (W.D. Mich. 1968).

48. Mich. Farm Bureau v. Hare, 151 N.W.2d 797 (Mich. 1967). *But see* Whitmer v. House, 426 P.2d 100 (Kan. 1967) (holding that state court is an inappropriate forum to adjudicate the Uniform Time Act and that actions must be brought in federal court).

49. Time Life Broad. Co. v. Boyd, 289 F. Supp. 219 (S.D. Ind. 1968) (holding that the Secretary of Transportation must enforce the provisions of the Uniform Time Act against the state of Indiana despite contrary state legislation).

50. See “Standard Time Zone Investigation,” *supra* note 46, at 695–96.

51. See, e.g., Dustin White, *When the Time Changed in Mandan*, MIDWESTERN SCOUT (Aug. 3, 2016), <https://www.midwesternscout.com/when-the-time-changed-in-mandan/> [<https://perma.cc/3YUU-MSGX>] (describing Mandan, North Dakota’s switch to central time from the mountain time used in the rest of Morton County due to increasingly strong economic ties with Bismarck). The entirety of Morton County and most surrounding counties have since switched to central time, though Grant County (immediately south) remains on mountain time.

52. West Wendover is much closer to Salt Lake City than any major city in Nevada. *Compare Distance Between West Wendover, NV and Salt Lake City, UT*, DISTANCE BETWEEN CITIES CALCULATOR, <https://www.distancebetweencities.us/result.php?fromplace=west+wendover&toplace=salt+lake+city> [<https://perma.cc/Z3GP-WBQL>] (115 miles) *with* *Distance Between West Wendover, NV and Reno, NV*, DISTANCE BETWEEN CITIES CALCULATOR, <https://www.distancebetweencities.us/result.php?fromplace=west+wendover&toplace=reno> [<https://perma.cc/PML6-DCAR>] (315 miles). This discrepancy in geographic distance is exacerbated by the strong economic and geographic ties between residents of West Wendover and Salt Lake City. See *Relocation of Standard Time Zone Boundary in the State of Nevada*, 64 Fed. Reg. 56,705, 56,706–07 (Oct. 21, 1999) (to be codified at 49 C.F.R. pt. 71).

53. *Relocation of Standard Time Zone Boundary in the State of Nevada*, 64 Fed. Reg. at 56,706.

West Wendover ‘think Mountain time.’”<sup>54</sup> On the strength of these factors, the Department of Transportation found sufficient cause to move West Wendover into mountain time; it even held that “[b]ecause the community is already unofficially observing mountain time, we find good cause to make this rule effective on less than 30 days notice” (with the time change becoming effective on October 31, 1999).<sup>55</sup>

The West Wendover ruling demonstrates that commercial considerations guide whether a municipality can successfully move time zones. The ruling states the standard for making a decision on time zones as “regard for the convenience of commerce and the existing junction points and division points for common carriers engaged in interstate or foreign commerce.”<sup>56</sup> West Wendover’s petition detailed that businesses in the town were primarily served by vendors in Utah in order to emphasize the benefit this decision would have on commerce, and connected the decision to common carriers by showing that buses, trains, and airports were only available to residents of West Wendover if they crossed into Utah and its mountain time zone.<sup>57</sup> It seems likely that any town attempting a similar change would need to demonstrate comparable economic and interstate reliance on a population center in a neighboring time zone.<sup>58</sup> Several other towns in Nevada unofficially observe mountain time for the benefit of tourists from the mountain time zone,<sup>59</sup> but West Wendover is the only such municipality

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54. *Id.*

55. *Id.* The connection between West Wendover, Nevada and its neighboring city of Wendover, Utah was so great that the towns sought to merge in 2006, with the increasingly impoverished town of Wendover joining Nevada under the proposed plan. The merger enjoyed support from lawmakers at the federal, state, and local level, but two of Wendover’s four city council members ultimately voted against the merger, with the mayor casting the tiebreaking vote to remain in Utah. Delen Goldberg, *Nevada’s Tiny Town with a Different Time Zone*, LAS VEGAS SUN (Jul. 2, 2011, 2:00 AM), <https://lasvegassun.com/news/2011/jul/02/nevadas-tiny-town-different-time-zone/> [<https://perma.cc/B5FB-5YCE>].

56. Relocation of Standard Time Zone Boundary in the State of Nevada, 64 Fed. Reg. at 56,705 (quoting 15 U.S.C. § 261). This justification for a time zone change ties directly into Congress’ authority to regulate time zones under its Commerce Clause power. U.S. CONST. art. I, § 8, cl. 3. While this provision ostensibly exists to firmly place federal regulation of time zones under the purview of the Commerce Clause, it also harkens back to the origin of time zones as a tool for railroad coordination. *See supra* notes 15–16.

57. Relocation of Standard Time Zone Boundary in the State of Nevada, 64 Fed. Reg. at 56,706.

58. It seems plausible that a locality near a time-zone boundary but firmly within the interior of one state, such as western Cherry County, Nebraska, could unilaterally move its time zone for local purposes, since such an action would not affect interstate commerce and would therefore be beyond federal jurisdiction. This might have already occurred based on the lack of time zone designation on the county court website. *See Clerk of District Court*, WELCOME TO CHERRY CNTY., NEB., [https://co.cherry.ne.us/webpages/district\\_court/district\\_court.html](https://co.cherry.ne.us/webpages/district_court/district_court.html) [<https://perma.cc/497H-X5W6>]. However, this time zone change would not be valid in the interpretation of a federal statute or in any dispute affecting interstate commerce, thereby limiting its saliency for many legal applications. This also might be yet another instance of inattentiveness to the designation of time zones. *See supra* note 2.

59. *Exceptions, Oddities and Notes*, ON TIME ZONE, <http://ontimezone.com/exceptions.php> [<http://perma.cc/5F4J-B5T3>] (listing municipalities in Elko County that are in close proximity to the

to formally move its time zone. While the lack of an official change to mountain time in similarly situated towns near Nevada's northern border likely does not cross the minds of residents on a regular basis, the existence of a one-hour offset between legal time and informally observed time creates an inaccurate public perception of what time it actually is at any given moment.<sup>60</sup>

In areas more populated than the deserts of Nevada, there are usually compelling reasons favoring both possible sides of a time-zone boundary. The most salient examples of ambiguity between time zones can be found in Indiana, where several counties have moved back and forth between the eastern and central time zones over the past century.<sup>61</sup> Indiana was originally placed into a single time zone by the Standard Time Act, with Indiana's eastern border serving as the boundary between the eastern time zone observed in Ohio and Kentucky and the central time zone observed in Indiana.<sup>62</sup> This upset residents of eastern counties in Indiana, many of which belong to the metropolitan areas of either Cincinnati, Ohio or Louisville, Kentucky, which are situated just on the other side of Indiana's border.<sup>63</sup> However, a statewide move to eastern time would be equally unpalatable for residents of northwest counties, which are part of the Chicagoland region.<sup>64</sup> Attempts to consolidate Indiana's time at a statewide level produced considerable acrimony. For instance, during an attempted filibuster of a 1949 bill that unified Indiana in the central time zone, Representative Herbert Copeland averted the midnight expiration of the legislative session by physically winding time on the official state clock back to 9:00 p.m. and breaking it.<sup>65</sup> Representative Copeland's act of profound legislative irony paused the official passage of time in Indiana and prolonged the session until what would have been 3:30 a.m. local time, when the bill ultimately passed.<sup>66</sup> The two sides of the state would each

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Nevada-Idaho border). These tourists are drawn to Nevada border towns from neighboring states because of Nevada's permissive state laws, including legalized gambling.

60. See *State ex rel. Schirado v. Fry*, 157 N.W.2d 830, 832 (N.D. 1968) (holding that Morton County's then-prevailing use of mountain time was preempted by North Dakota's official central time designation); *Vinson v. Credit Control Servs.*, 908 F. Supp. 2d 274, 276–77 (D. Mass. 2012) (holding that an Alabama town's localized adherence to eastern time instead of its official central time designation did not allow a resident to bring an action for violation of the Fair Debt Collection Practices Act against a creditor who called at 9:39 PM eastern time).

61. See INDYSTAR, *supra* note 3.

62. Federal Standard Time Act, ch. 24, 40 Stat. 450 (1918) (codified as amended at 15 U.S.C. § 261).

63. *Map of Indiana (IN)*, NATIONS ONLINE PROJECT, [https://www.nationsonline.org/oneworld/map/USA/indiana\\_map.htm](https://www.nationsonline.org/oneworld/map/USA/indiana_map.htm) [<https://perma.cc/3D24-ZA5N>].

64. *Id.*

65. INDYSTAR, *supra* note 3.

66. *Id.* (“In the end, it doesn't matter which side won. The law ha[d] no enforcement powers and [was] simply ignored by fast-time communities.”).

benefit from being in their own time zone, which presents the question of where precisely the line between the two zones should be placed.

This conflict endures most saliently in Indiana's interior, where the presence of comparable "pull factors" for the eastern and central time zones for various residents makes it ambiguous which time zone is preferable. For instance, Starke County submitted petitions to the Department of Transportation requesting a move from central to eastern time in 1981, 1986, and 1991, with only the 1991 petition accepted.<sup>67</sup> Residents of Starke County were essentially split between a preference for eastern and central time,<sup>68</sup> and the county was ultimately switched back to the central time zone in 2006,<sup>69</sup> where it remains today. Slight shifts in the economic conditions surrounding the county have resulted in these repeated time-zone switches for an area that evidently has a connection to both time zones.<sup>70</sup> Evaluating appropriate time zones at a county level can produce similar complications when county lines do not perfectly replicate social organization. In a notable example, Martin County's decision to move from central to eastern time was rescinded by Martin County officials when it became clear that the decision divided a single military base between two time zones.<sup>71</sup>

The inevitable drawback of local-level time-zone reorganization is effectively summarized in the Secretary of Transportation's response to Starke County's 1981 petition to move to eastern time:

Requests to move an area from one time zone to another reflect a number of concerns, among them the general inconvenience felt by persons living near the boundary between time zones. Clearly, it causes confusion and dislocation to live on one time and work, or go to school, or shop, or seek medical attention on another. The boundaries between time zones in the United States run predominantly through less populated areas and thereby minimize,

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67. Standard Time Zone Boundary in the State of Indiana; Relocation of Time Zone Boundary, 56 Fed. Reg. 51,997, 51,997 (Oct. 17, 1991) (to be codified at 49 C.F.R. pt. 71).

68. *Id.* at 51,998. Forty-two residents attended a public hearing, with twenty-seven comments favoring a change and fifteen comments opposing it. Of forty-one (41) written comments submitted to the docket, twenty-eight (28) opposed the change and thirteen (13) comments favored it. Combining the comment figures gives a total of forty-three (43) comments opposing a change and forty (40) comments favoring a change. *Id.*

69. Standard Time Zone Boundary in the State of Indiana, 71 Fed. Reg. 3,228 (Jan. 20, 2006) (to be codified at 49 C.F.R. pt. 71).

70. See Standard Time Zone Boundary in the State of Indiana; Relocation of Time Zone Boundary, 56 Fed. Reg. at 51,999; Standard Time Zone Boundary in the State of Indiana, 71 Fed. Reg. at 3,231.

71. *Martin County Rescinds Time Zone Change Decision*, INSIDE IND. BUS. (Mar. 15, 2006, 1:40:08 PM), <https://web.archive.org/web/20120229133444/http://www.insideindianabusiness.com/newsitem.asp?ID=17202>. Martin County officials also noted that 67% of the employees who worked on the military base would live in a different time zone than the one in which they worked.

but can never completely remove, these problems. Similarly with a time zone boundary decision—it can only minimize, never completely remove, these problems. The question[] raised in this rulemaking is whether the boundary between eastern and central time should follow the western or eastern boundary of the county. Either way, the county would still be on the boundary, with all the problems that entails.<sup>72</sup>

The problems experienced by residents of localities near time-zone boundaries are endemic to the existence of “time-zone boundaries.” Questions of where to place a time zone are simply questions of which specific individuals bear the burden of a personally inconvenient time-zone boundary, and these burdens are likely to shift unpredictably over time.<sup>73</sup> The analysis of more contentious time-zone boundary modification petitions reveals that opinions are often oriented around short-term economic circumstances, such as the opening or closing of one major employer.<sup>74</sup> As a result, these boundary movements frequently revert—for instance, five Indiana counties that moved from eastern to central time in 2006 petitioned to move back to eastern time just four months later.<sup>75</sup> Repositioning a time-zone boundary is simply not effective as a solution to the problems caused by a scheme in which many individuals necessarily “live on one time and work, or go to school, or shop, or seek medical attention on another.”<sup>76</sup>

### III. THE LOSING BATTLE AGAINST DST

The most popular ongoing movement to modify time at the state level is to eliminate the switch between DST and standard time.<sup>77</sup> DST provides an

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72. Standard Time Zone Boundary in the State of Indiana; Termination of Rulemaking, 46 Fed. Reg. 51,786, 51,787 (Oct. 22, 1981) (to be codified at 49 C.F.R. pt. 71).

73. A public comment on Starke County’s 1991 petition frames the issue as a choice for the county between “whether we’re oriented toward South Bend or whether it’s Lake and Porter County, Gary and Chicago.” Standard Time Zone Boundary in the State of Indiana; Relocation of Time Zone Boundary, 56 Fed. Reg. at 52,000.

74. *See id.*

75. Associated Press, *5 Indiana Counties Want to Go Back to Eastern Time Zone*, FOX NEWS (July 18, 2007), <https://www.foxnews.com/story/5-indiana-counties-want-to-go-back-to-eastern-time-zone> [https://perma.cc/ZL7F-PRUL].

76. Standard Time Zone Boundary in the State of Indiana; Termination of Rulemaking, 46 Fed. Reg. at 51,787.

77. Currently, forty-eight states within the United States observe DST, with only Hawaii and Arizona (except for Navajo nation) exempting themselves. *See supra* note 36. These states are joined by the territories of American Samoa, Guam, Northern Mariana Islands, Puerto Rico and the United States Virgin Islands. The low-lying latitude of each of these locations minimizes any advantage gained by daylight savings, since the timing of sunrise and sunset do not vary greatly throughout the year.

inescapable form of time switching and can be perceived as more invasive because it does not require any action by an individual for the time switch to take place. Aside from the confusion associated with regular time switches, a recent German study demonstrated an increase in both natural and unnatural deaths in the week following the change from standard time to DST.<sup>78</sup> Meanwhile, a study of 185,419 psychiatric hospital records found that the shift from DST back to standard time results in an 11% increase in the rate of unipolar depressive episodes.<sup>79</sup> The DST time switch is often criticized as merely a semiannual inconvenience, but it can more accurately be characterized as a socially imposed biannual attack on mental and physical health.

Discontent with the current system of DST time switching has led to a sharp rise in state legislative action.<sup>80</sup> In 2018, Florida passed a law to permanently move the state to DST, becoming the first state to successfully enact permanent DST legislation.<sup>81</sup> This permanent adoption of DST by Florida would eliminate DST time switching within the state,<sup>82</sup> and for most of the state, EDT would always be in effect regardless of time of year. That same year, California voters passed Proposition 7, which authorized the legislature to switch the state to permanent DST.<sup>83</sup> These two populous states were joined by six additional states in 2019, all of which approved

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However, this does mean that the time zone of each jurisdiction effectively shifts one hour in relation to the rest of the United States during DST. *See infra* notes 97–103 and accompanying text.

78. Lena Marie Lindenberger, Hanns Ackermann & Markus Parzeller, *The Controversial Debate About Daylight Saving Time (DST)—Results of a Retrospective Forensic Autopsy Study in Frankfurt/Main (Germany) Over 10 Years (2006–2015)*, 133 INT'L J. LEGAL MED. 1259 (2019) (noting a statistically significant increase in deaths following the switch from standard time to DST, with marked increases in fatalities from traffic accidents, acute myocardial infarction, and suicide). This study linking the “spring forward” to an increase in mortality is accompanied by numerous studies linking the springtime change with detrimental health effects. *See also* Amneet Sandhu, Milan Seth & Hitinder S. Gurm, *Daylight Savings Time and Myocardial Infarction*, 1 OPEN HEART, Mar. 30, 2014, at 1, <https://openheart.bmj.com/content/1/1/e000019> (demonstrating a 24% increase in acute myocardial infarction on the Monday immediately following the DST change); Jussi O.T. Sipilä, Jori O. Ruuskanen, Päivi Rautava & Ville Kytö, *Changes in Ischemic Stroke Occurrence Following Daylight Saving Time Transitions*, 27–28 SLEEP MED. 20 (2016) (showing an elevated occurrence rate of ischemic stroke during the two days following a DST transition).

79. Bertel T. Hansen, Kim M. Sønderkov, Ida Hageman, Peter T. Dinesen & Soren D. Østergaard, *Daylight Savings Time Transitions and the Incidence Rate of Unipolar Depressive Episodes*, 28 EPIDEMIOLOGY 346, 348–49 (2017).

80. James B. Reed, *Time Passages: Could Clock-Switching Be on the Way Out?*, NAT'L CONF. ST. LEGISLATURES (Oct. 31, 2019), <http://www.ncsl.org/blog/2019/10/31/time-passages-could-clock-switching-be-on-the-way-out.aspx> [<https://perma.cc/M4MG-RLHM>].

81. *Id.*

82. Many Floridians would still experience some time switching, with much of the Florida panhandle in the central time zone instead of the eastern time zone used in most of the state.

83. Reed, *supra* note 80.

legislation that moved their state to permanent DST.<sup>84</sup> These states have been joined by an additional seven states as of the time of publication, and nearly every other state has at least introduced a bill to eliminate DST time switching since 2018.<sup>85</sup>

Despite a clear state-level legislative intent to eliminate time switching, none of these changes can be enforced without further federal action. The federal statute governing DST permits states to exempt themselves from observing DST, allowing them to remain on permanent standard time.<sup>86</sup> However, it also explicitly supersedes all state laws that “provide for advances in time or changeover dates different from those specified in this section.”<sup>87</sup> A move to permanent DST constitutes an “advance in time” on different dates than those permitted by statute. Thus, while any of these states could have effectively ended time switching by exempting themselves from DST and moving to permanent standard time, the decision to opt instead for permanent DST leaves the changes superseded by federal law and unable to take effect.<sup>88</sup> In practice, the fifteen states that have enacted permanent DST laws have done so in only a symbolic sense.

It seems illogical that every state<sup>89</sup> to pass legislation to move away from seasonal time switching would choose the permanent time that cannot legally take effect, especially since “[t]he act of time switching is the primary complaint of those seeking a change from the current situation.”<sup>90</sup> A similar trend was seen across all forty states that considered bills related to a permanent time in 2019, with 64% of bills proposing a permanent move to DST compared to just 24% proposing a permanent move to standard time.<sup>91</sup> This paradoxical divide may simply reflect the more favorable position of interest groups on each side of the division. Permanent DST has been promoted by business interests and public-safety advocates, who argue that an extra hour of evening light increases time for recreation and decreases crime rates, but is opposed by the National Parent Teacher Association due to later sunrises that may force children to walk to school

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84. *Id.* Arkansas, Delaware, Maine, Oregon, Tennessee, and Washington joined Florida and California in approving full-time DST. *Id.*

85. Scott Yates, *Current Legislation, #LOCKTHECLOCK*, <https://www.sco.tt/time/current-legislation.html> [<https://perma.cc/R7HM-CDT9>]. Utah, South Carolina, Ohio, Idaho, Louisiana, and Wyoming have passed laws or resolutions endorsing a move to permanent DST. *Id.* The only states that have not introduced DST legislation are Virginia, Wisconsin, Nevada, Montana, and the time scholars’ beloved Indiana. *Id.*

86. 15 U.S.C. § 260a(a).

87. *Id.* § 260a(b).

88. *Id.*

89. This refers only to the recent wave of DST legislation and not to the territories and states that have been on permanent standard time for several years. *See supra* note 77.

90. Reed, *supra* note 80.

91. *Id.*

in darkness.<sup>92</sup> It could also be true that DST is simply a more optimized time system for more people. A 2008 economic analysis by Calandrillo and Buehler found that a year-round DST would improve society by reducing traffic fatalities, peak energy demand, and criminal activity,<sup>93</sup> though the universality of these benefits has been questioned by European meta-studies.<sup>94</sup> But while this evidence seems to show a strong national preference for DST, the deeper implication is that there is a dissatisfaction with standard time as currently organized. A majority of states considered legislation that would, after a theoretical change in federal law,<sup>95</sup> remove that state from its standard time designation on a permanent basis. Rather than interpreting this trend as a ringing endorsement of the only explored alternative to the status quo, it is more rational to explain state legislative action as an acknowledgement of the deficiencies in our current time system.<sup>96</sup>

While a comprehensive time-switching analysis frames state-level DST action as insufficient to address the problem in its full scope, it also recognizes the hazard that this trend presents. Variable adoption of state laws to eliminate time switching would appear to reduce the burden time switching creates for residents of a particular state, but would cause profound detrimental effects at the national level. Any enforceable movement by a significant number of states toward DST would dramatically complicate time-zone conversion for purposes of interstate commerce by creating uncertainty about what time a given area currently observes. A primary justification for the adoption of the Uniform Time Act was to standardize the highly local system of DST in place prior to 1966.<sup>97</sup> States

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92. See Joel Achenbach, *Springing Forward to Daylight Saving Time is Obsolete, Confusing and Unhealthy, Critics Say*, WASH. POST (Mar. 8, 2019, 3:39 PM CST), <https://www.washingtonpost.com/science/2019/03/08/springing-forward-daylight-saving-time-is-obsolete-confusing-unhealthy-critics-say/> [<https://perma.cc/VHD3-6P7Q>].

93. Steve P. Calandrillo & Dustin E. Buehler, *Time Well Spent: An Economic Analysis of Daylight Saving Time Legislation*, 43 WAKE FOREST L. REV. 45, 74 (2008).

94. See Rachel N. Carey & Kiran M. Sarma, *Impact of Daylight Saving Time on Road Traffic Collision Risk: A Systematic Review*, 7 BMJ OPEN 1 (2017), <https://bmjopen.bmj.com/content/7/6/e014319> (reviewing studies and finding inconclusive effects on road safety associated with DST changes); Tomáš Havránek, Dominik Herman & Zuzana Irsova, *Does Daylight Saving Save Energy? A Meta-Analysis* (Charles Univ. Inst. of Econ. Stud, Working Paper No. 24/2016, 2016), <http://hdl.handle.net/10419/174191> (finding that energy savings during DST increase with distance from the equator, with subtropical countries using more energy during DST); Till Roenneberg, Eva C. Winnebeck & Elizabeth B. Kierman, *Daylight Saving Time and Artificial Time Zones—A Battle Between Biological and Social Times*, 10 FRONTIERS IN PHYSIOLOGY 944 (2019) (arguing that DST negatively impacts human health by creating a disconnect between “sun clocks,” “social clocks,” and “body clocks.”).

95. See *supra* notes 86–88 and accompanying text.

96. See *infra* Part IV.

97. *Uniform Time: Hearing Before the H. Comm. on Interstate & Foreign Com.*, 89th Cong. 11 (1966) (statement of Phillip S. Hughes, Assistant Director for Legislative Reference, Bureau of the Budget) (“[T]here are two principal causes of confusion. First, many jurisdictions make independent

and localities retained discretion to choose when and if to observe DST, resulting in “a patchwork of different times . . . in contiguous areas in many part[s] of the country.”<sup>98</sup> If the states that have currently adopted permanent DST were permitted to observe their laws, a similar patchwork would emerge during standard time. Maine, Delaware, South Carolina, Georgia, Ohio, and parts of Florida and Tennessee would constitute their own time zone one hour ahead of eastern time,<sup>99</sup> creating dramatic time zone divisions within metropolitan areas that cross state boundaries, such as Charlotte, North Carolina and Wilmington, Delaware. Utah’s observed MDT would be aligned with CST, making its time two hours ahead of neighboring Nevada’s observed PST and destroying the time unity that West Wendover fought to achieve.<sup>100</sup>

State-by-state moves to permanent DST would eliminate the hazards of time switching for residents of that state, but would entirely erode the predictability and geographic logic that the present system of federal time zones offers.<sup>101</sup> It is likely that Americans can consistently remember the time difference between them and persons who they regularly contact in a different state, but it becomes much more difficult to remember whether that person lives in a state that switches time.<sup>102</sup> These variations would be subject to further complication as states retained discretion to adopt a permanent time—either standard or DST—or to revert back to time switching, creating a possibility of relearning new time switching patterns each year.<sup>103</sup> State lines and time-zone boundaries were created

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decisions on whether to adopt daylight saving time or remain on standard time during the summer months.”).

98. *Id.*; see also Elizabeth Chuck, *Ditch the Switch? Call to Go on Permanent Daylight Saving Time Grows*, NBC NEWS (Aug. 17, 2019, 3:41 AM CDT), <https://www.nbcnews.com/news/us-news/ditch-switch-call-go-permanent-daylight-saving-time-grows-n1043051> [https://perma.cc/87UZ-Y3UF] (“Some entire states enacted it, while elsewhere, individual cities opted in. The result was dizzying: On a bus ride that covered just 35 miles from Steubenville, Ohio, to Moundsville, West Virginia, passengers had to change their watch seven times to accurately keep time.”).

99. These areas would align with Puerto Rico and New Brunswick, Canada, in the Atlantic time zone.

100. See *supra* notes 52–60 and accompanying text.

101. Similar effects would likely result if a large number of states opted to exempt themselves from DST and remain permanently on standard time. Hawaii avoids confounding the federal time system due to its existence in its unique time zone and Arizona is a suitable exception due to its lack of major interstate population centers near its borders. But Arizona residents who travel between Navajo territory and the rest of the state remain burdened by inconsistent observance of DST. See Salvador Rodriguez, *What Time Is It? In Arizona, It Depends on Where You’re Standing*, CRONKITE NEWS (Mar. 9, 2012), <http://cronkitenewsonline.com/2012/03/what-time-is-it-in-arizona-it-depends-on-where-youre-standing/index.html> (“Arizona’s unusual rules and geography mean someone could drive through three areas and go through two time changes while never leaving the state.”).

102. Test this proposition yourself—do you remember all fifteen states that have passed legislation to permanently move to DST? For an answer key, see *supra* notes 84–85.

103. The possibility of regular shifts in state time observance may seem remote, but the seventy-five bills introduced across forty states in 2019 represented the most state action on the subject in the

independently and the logic of our current system of time organization was simply not designed for state-level action. Enforceable state legislation would quickly destroy what remaining logic our national time-zone system has to offer.

By eliminating DST time switching on a state-by-state basis, state legislatures would create greater disunity among national time zones and would complicate seasonal variations in interstate time switching. The increased demand for an end to DST time switching can be most effectively met at the federal rather than state level alongside a comprehensive scheme to eliminate domestic time switching entirely.

#### IV. HOW INTERNATIONAL TIME-ZONE COORDINATION OFFERS A MODEL FOR THE PRESENT

The most apparently radical time-zone change would be to eliminate any geographic distinction in time zones and move to a system of universal time. In actuality, this shift would require the least legal maneuvering, as international civil time is already based off an agreed upon standard, UTC.<sup>104</sup> The official definition of time zones within the United States treats each time zone as a differential offset from UTC,<sup>105</sup> and this practice is common in other countries as well.<sup>106</sup> When computers display times, these conversions are done in reference to UTC.<sup>107</sup> Thus, a computer converting

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current era of DST. Reed, *supra* note 80. It is conceivable that states would be more willing to pass legislation to join neighbors within their time zone, as Oregon and Washington did following California's 2018 vote to move to permanent DST. Lauren Dake, *Oregon Passes Permanent Daylight Saving Measure, Bill Goes to Governor*, OR. PUB. BROAD. (June 6, 2019 6:08 PM PDT), <https://www.opb.org/news/article/oregon-daylight-saving-measure-permanent-passes-pacific-time/>. These shifts could occur in both directions, as a state moved permanently to either DST or standard time to follow an economic neighbor. See Matt Guilhem, *A Single Time Zone for All of Idaho? Unanimously Approved Resolution Could Pave the Way*, BOISE ST. PUB. RADIO (Mar 5. 2018), <https://www.boisestatepublicradio.org/post/single-time-zone-all-idaho-unanimously-approved-resolution-could-pave-way#stream/0> [<https://perma.cc/CF72-Q9SZ>] (describing an Idaho Senate bill to unify the state under permanent mountain standard time if Washington enacts permanent DST). Such bidirectional time volatility would regularly recompile inter-zone time switching.

104. UTC is actually one of several "universal times." UTC is derived from International Atomic Time, which is a composite average of atomic clocks stored at national time laboratories around the world and which uses a unit of precisely one SI second. See *Time: Overview*, BUREAU INT'L DES POIDS ET MESURES, <https://www.bipm.org/en/bipm/tai/> [<https://perma.cc/UL47-9WT6>]. This is distinguishable from UT1, which is calculated based on the true rotation angle of the Earth in comparison to an extraterrestrial reference point. Dennis D. McCarthy, *Astronomical Time*, 79 PROCEEDINGS OF THE IEEE 915, 916 (1991). UTC naturally deviates from UT1 based on the slowing rotation of the Earth over time, leading to the periodic introduction of "leap seconds" to UTC to keep it within 0.9 seconds of UT1. *Id.* at 917.

105. 15 U.S.C. § 261(a).

106. Arthur David Olson, *Sources for Time Zone and Daylight Saving Time Data*, <http://web.cs.uc la.edu/~eggert/tz/tz-link.htm> [<https://perma.cc/L3Q8-FMVU>].

107. See *id.*

between EST and CST would effectively add five hours (to go from EST to UTC) and then subtract six hours (to go from UTC to CST) rather than subtracting one hour.

In international settings where time coordination is especially critical, universal time is already used as a standard. UTC, or “Zulu time,” is used in several capacities by the United States government, including for aviation, military operations, and National Oceanic and Atmospheric Administration (NOAA) satellite monitoring.<sup>108</sup> On the International Space Station, where passengers observe a sunrise or sunset every forty-five minutes, UTC is observed as an international standard.<sup>109</sup> There are certainly many other private-sector instances in which multinational corporations align global meeting times with the time zone of a company’s business center or with a customer’s preferred time zone. Instances of international time standardization proves that American conceptions of time can deviate from the roughly standard numeric time values used today. As international coordination grows increasingly important for a greater percentage of the domestic population, taking steps to maximally standardize time can only improve cultural adaptability to these social changes.

#### V. NATIONAL SOLUTIONS TO COMBAT DOMESTIC TIME SWITCHING

Given the insufficiency of localized time-zone boundary movement and the complications associated with state-level efforts to eliminate DST, the simplest path to improve the American time-zone system is through federal action. There are two apparent paths by which time zones could be modified or consolidated at the national level. The first and most straightforward path would be through the Secretary of Transportation, who is responsible for maintaining the system of time zones under the current scheme of time-zone organization.<sup>110</sup> However, it is unclear whether the Secretary of Transportation would have authority to deviate from the current number of time zones or the UTC offsets assigned to each time zone because both are proscribed by statute.<sup>111</sup> The second and surest path would be through Congressional action, as previously accomplished by the Standard Time Act

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108. *Zulu Time*, GREENWICH MEAN TIME, <https://greenwichmeantime.com/articles/history/zulu/> [<https://perma.cc/52NR-QVSY>].

109. Gareth Mitchell, *What Time Zone Do They Use on the International Space Station?*, SCIENCE FOCUS, <https://www.sciencefocus.com/space/what-time-zone-do-they-use-on-the-international-space-station/> [<https://perma.cc/798E-KPGQ>].

110. *See supra* notes 18–19.

111. *See supra* note 19.

and the Uniform Time Act.<sup>112</sup> Just as these two previous acts effectively updated time zones to fit evolving social needs in 1918 and 1966, a new scheme of time organization that would better serve the needs of a globalized society is long overdue.

*A. The Best Solution: One Permanent National Time Zone*

The effective international use of UTC shows that a universal time standard could work within the United States.<sup>113</sup> Authority to modify the limits of each time zone is delegated to the Secretary of Transportation, who is instructed to act with “regard for the convenience of commerce and the existing junction points and division points of common carriers engaged in interstate or foreign commerce . . . .”<sup>114</sup> While the number, offset, and name of each time zone are fixed by statute,<sup>115</sup> the Secretary of Transportation is otherwise given broad discretion to set the limits of each time zone within the statutory framework. Thus, if the Secretary of Transportation sought to independently eliminate time zones at the national level without further legislative action, she could apparently do so by setting the limits of one time zone to encompass the entirety of the United States’ territory and placing no land within the remaining time zones. For instance, the Secretary of Transportation could set the boundaries of Pacific time from the east coast of Maine to the west coast of Hawaii while assigning no land or small pieces of empty land to the remaining time zones established by statute.<sup>116</sup> If such a decision were determined to be convenient for interstate commerce, it would theoretically be an appropriate exercise of the Secretary of Transportation’s authority.

However, this solution would not quite unify all of the contiguous United States within one time zone, as subsequent sections of the United States Code place part of Idaho into the Pacific time zone<sup>117</sup> and parts of Texas and Oklahoma within the Central time zone.<sup>118</sup> It is unclear why these two zones are uniquely prescribed by statute, but Congress continues to perform a regulatory function, most recently by adjusting the Idaho region’s assigned

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112. See *supra* notes 16–20 and accompanying text for the history of federal legislation on time zones.

113. See *supra* Part IV.

114. 15 U.S.C. § 261(a).

115. *Id.* at §§ 261–63.

116. It is unlikely that this sort of unilateral action would stand for long unless popular support for time-zone abolition increases well beyond current levels.

117. 15 U.S.C. § 264.

118. *Id.* at § 265.

time zone in 2007.<sup>119</sup> By statutorily creating boundaries for two different regions of the United States in different time zones and continuing to maintain those zones, Congress has effectively made it impossible to unify United States time zones through regulatory action alone. Even if the Secretary of Transportation used one of these two zones as the unified standard for the country, the other regions prescribed by statute would be isolated from the rest of the United States. A broad unilateral effort by the Secretary of Transportation could eliminate more than ninety-nine percent of time switching from the United States, but to wholly eliminate time switching, legislative action is required.<sup>120</sup>

The ideal national-time-zone scheme would eliminate time switching, both from DST and from interstate commerce. The most effective way to do so is to adopt a single permanent national time zone; or more accurately, since the “zone” would include the entirety of the United States, an absolute national time.<sup>121</sup> A concept of absolute time does not require a dramatic departure from how the world is understood, and federal courts already acknowledge that, for example, 3:53 p.m. EDT comes before 3:30 p.m. CDT, stating that “‘absolute time’ (as opposed to ‘time zone’ time), is used to determine which petition is filed first.”<sup>122</sup> Rather than operating under a time-zone scheme designed to do little more than preserve a consistent solar noon,<sup>123</sup> people in the United States would operate in a time system designed to ensure unity and consistency of time throughout interstate commerce and interactions.

Overcoming temporal inertia and moving to a single national time would optimize our time system for an era of digital speed rather than railroad speed.<sup>124</sup> There would certainly be skepticism to the suggestion that what

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119. America Competes Act, Pub. L. No. 110-69, § 3570(b)(4), 121 Stat. 572, 599 (2007) (to be codified at 15 U.S.C. § 205).

120. Furthermore, it is politically preferable for such a widespread social change to take place via popularly accountable legislative action rather than administrative proceedings.

121. This national time zone would still need a name in an international context barring even more sweeping actions to eliminate time switching on a global scale and could presumably be called something like American time.

122. *Mead Corp. v. Stuart Hall Co.*, 679 F. Supp. 1446 app. at 1453 (S.D. Ohio 1987) (holding that a suit filed in Ohio was filed prior to a suit filed in Missouri even though the “clock-time” was later in the Ohio suit).

123. See *supra* note 27.

124. We might be living in both a digital and railroad era, as transit advocates would note that Amtrak set a new record for ridership in 2019. Michael Goldstein, *Is US Passenger Rail a Thing of the Past—or the Future?*, FORBES (Dec. 6, 2019, 04:39 AM), <https://www.forbes.com/sites/michaelgoldstein/2019/12/06/is-us-passenger-rail-a-thing-of-the-past-or-the-future/#4f835f794ed0> [<https://perma.cc/MY3A-UEGR>]. Further time-zone consolidation would only stand to benefit the travel and logistics industries by reducing the potential for time switching to cause a miscommunicated detail, so this proposal is already optimized for a new railroad era.

was once midnight could become 10:00 p.m.,<sup>125</sup> but the arbitrary nature of the numbers assigned to a given time are becoming more apparent as society evolves. Television broadcasts, which tended to act as a force tying society to specific timeslots,<sup>126</sup> are losing viewership to streaming services that allow viewers to individualize which particular hours they spend on entertainment.<sup>127</sup> Employment has transitioned from the culturally understood “nine-to-five” to a labor market where “57% of organizations offer flexible schedules, up from 52% in 2015” and “98% of companies provide some form of fluctuating hours.”<sup>128</sup> The COVID-19 pandemic accelerated this already rapid social change to a breakneck pace, with employees and employers both reporting an increase in expected remote work even after the pandemic ends.<sup>129</sup> The cultural force of reference to a given time like 7:00 a.m., 2:00 p.m., or 9:00 p.m. has eroded like never before, as the connotations of these times can vary dramatically for each given individual. In exchange for an intuitive familiarity with what 5:00 p.m. meant in a bygone world, we have sacrificed the ability to know when exactly the 5:00 p.m. in the far-flung client’s email refers to. The burdens of our current time-zone system grow with each additional interconnection, while the burdens of a proposed national time zone are merely sentimental.

The unavoidable and perhaps insurmountable challenge in consolidating American time zones is deciding which time zone to use going forward. Although residents of each time zone would undoubtedly prefer for the rest of the country to adopt their time zone, there is no decisive argument in favor of any particular zone. Eastern time might seem to be the most logical national time, with a substantial plurality (47.4%) of Americans living within its boundaries.<sup>130</sup> However, the eastern time zone sits at one extreme of the contiguous United States and would necessitate the largest numeric

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125. As would be the case for current central time residents if Pacific time were adopted nationwide, for instance.

126. See Hamermesh et al., *supra* note 30.

127. Sapna Maheshwari & John Koblin, *Why Traditional TV Is in Trouble*, N.Y. TIMES (May 13, 2018), <https://www.nytimes.com/2018/05/13/business/media/television-advertising.html> [<https://perma.cc/6YKB-VRP3>]. Cf. Eric J. Lyman, *Why the Market for Sports Broadcast Deals Is Soaring Despite the NBA-China Standoff*, FORTUNE (Oct. 14, 2019, 9:32 AM EST), <https://fortune.com/2019/10/14/nba-china-broadcast-sports-deals/> [<https://perma.cc/6QWC-XAAS>] (describing an increase in broadcast revenues for sporting events, which are necessarily tied to absolute time and thus inevitably induce time switching).

128. Paul Davidson, *More Employers Offer Flexible Hours, but Many Grapple With How to Make It Succeed*, USA TODAY (Oct. 20, 2019, 7:07 AM ET), <https://www.usatoday.com/story/money/2019/10/20/flexible-hours-jobs-more-firms-offer-variable-schedules/4020990002/> [<https://perma.cc/CL3N-WS2U>].

129. *U.S. Remote Work Survey*, PRICEWATERHOUSECOOPERS (June 25, 2020), <https://www.pwc.com/us/en/library/covid-19/us-remote-work-survey.html> [<https://perma.cc/C3U3-7PSJ>].

130. MetricMaps (@MetricMaps), TWITTER (October 12, 2020, 6:25 PM CDT), <https://twitter.com/metricmaps/status/1315795869430472705/photo/1>.

shift in timekeeping for residents of the Pacific, Hawaii-Aleutian, and Alaska time zones.<sup>131</sup> The share of Americans living in the eastern time zone might also be decreasing, as the population has shifted further west consistently throughout the country's history.<sup>132</sup> This ambiguity in ideal national time may be damning, as any move to any national time would require members of Congress to prioritize national time unity over the status quo of their constituents.<sup>133</sup> Perhaps the most efficient solution would be the national adoption of UTC. This would result in a dramatic time adjustment for everyone in the country, but would simplify time coordination in an international and digital context.<sup>134</sup>

This Note does not need to endorse any particular universal time designation, since the benefits of eliminating time switching will be experienced in any time zone.<sup>135</sup> More significantly, the specific time chosen should not matter. A large-scale reorganization of time would allow for organizations and communities to establish new operating hours in response to their particularized needs. Without any social expectation that the workday starts at 9:00 a.m. or that high school football games start at 7:00 p.m., local events and hours can be coordinated to better align with the reality of solar time at a particular location.<sup>136</sup> In this way, a maximally nationalized time-zone scheme can be adapted to serve local communities better than the existing system that approximates to the nearest hour.

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131. A single national time zone could include Hawaii, Alaska, and overseas territories, but its logic would not be disrupted by limiting zone consolidation to the contiguous forty-eight states. The geographic separation of Hawaii and Alaska from any other state immunizes them from the challenges associated with time zone boundaries. Nevertheless, these states would experience the greatest time-switching burden in interactions with the contiguous United States if eastern time were chosen as a national time zone, making it their least preferable outcome. Imposing any sort of time zone designed for the convenience of the contiguous forty-eight states would be highly disruptive for American territories in the Pacific.

132. *Mean Center of Population for the United States: 1790 to 2010*, U.S. CENSUS BUREAU <https://www.census.gov/library/visualizations/2010/geo/center-of-population-1790-2010.html> [<https://perma.cc/U47L-55GQ>].

133. This might comport with a growing trend in Congress acting as national voters rather than as representatives of local constituencies. See Gary C. Jacobson, *THE POLITICS OF CONGRESSIONAL ELECTIONS* 247 (8th ed. 2012) (“The electoral politics of the late 1960s and 1970s invited a focus on representation of the interests, values, and needs of local constituencies. Since that time, the growing electoral involvement of organized interest groups has increasingly directed members’ attention to issues and concerns extending beyond the boundaries of their districts and states.”).

134. See *infra* Part IV.

135. Some time zones would be better than others, however. See *infra* note 143.

136. A chief complaint by those opposed to year-round DST is that later sunlight hours produce safety concerns for children walking to school or workers commuting during pre-sunlight morning hours. See Achenbach, *supra* note 92; Roenneberg et al., *supra* note 94. A single permanent time would simplify the establishment of suitable opening hours for each community—schools would have greater freedom to schedule classes at a time that suited the realities of their daylight hours.

A national time-zone unification would not be without precedent, as an overwhelming majority of countries fall within a single time zone.<sup>137</sup> While most of these countries are much smaller than the United States, two notable exceptions are India and China.<sup>138</sup> Both of these countries have over a billion citizens and span enough land area to cover multiple time zones, but both countries are governed by a single zone. Though India and China do demonstrate proof of concept, they do not provide unqualified support, as the time-zone policy of both countries has been criticized.<sup>139</sup> A team from the Indian CSIR-National Physical Laboratory, which governs Indian Standard Time, has even proposed creating a separate time zone for northeast India.<sup>140</sup> However, the difficulties faced by these two countries could avoid being replicated here for two reasons. First, each country appears to suffer when local communities accord their days to the national time rather than to their respective solar hours.<sup>141</sup> An American national time-zone scheme should not necessitate that schools across the country start at similar times, but should enable localities to optimize schedules to make the best use of prevailing sunlight hours. A large-scale time change that happened today would help facilitate this by making the disruption widespread enough to prompt a thoughtful realignment of local schedules. Second, each country uses a system that isolates a region of their country—the northeast of India and the western Xinjiang province of China.<sup>142</sup> This could be prevented through a proper choice of time zone that avoids widespread displacement of clock and solar time.<sup>143</sup>

137. *World Time Zones by Country*, COUNTRIES-OF-THE-WORLD.COM, <https://www.countries-of-the-world.com/world-time-zones.html> [<https://perma.cc/52PJ-HRCF>].

138. *China and India: The Single Time-Zone Kings*, THE GLOBALIST (July 1, 2018), <https://www.theglobalist.com/china-india-the-single-time-zone-kings/> [<https://perma.cc/YLB7-ANQD>].

139. See Javier C. Hernández, *Rise at 11? A Single Time Zone Means Keeping Odd Hours*, N.Y. TIMES (June 16, 2016), <https://www.nytimes.com/2016/06/17/world/asia/china-single-time-zone.html> [<https://perma.cc/LYQ6-5HYG>] (describing the detrimental impact of China's single time zone on residents of the western Xinjiang region); Soutik Biswas, *How India's Single Time Zone Is Hurting Its People*, BBC NEWS (Feb. 12, 2019), <https://www.bbc.com/news/world-asia-india-47168359> [<https://perma.cc/72TN-B3NH>].

140. Lakhi Sharma et al., *Necessity of 'Two Time Zones: IST-I (UTC+5:30 h) and IST-II (UTC+6:30 h)' in India and Its Implementation*, 115 CURRENT SCI. 1252 (2018).

141. See, e.g., Hernández, *supra* note 139 (“[N]ational exams are sometimes given in the dead of night.”); Biswas, *supra* note 139 (“The school day starts at more or less the same time everywhere in India but children go to bed later and have reduced sleep in areas where the sun sets later.”).

142. The temporal isolation in Xinjiang is also exacerbated by the ethnic conflict in the region, with the Han Chinese majority strictly adhering to Beijing time and the persecuted Uighur population using a local time as “a psychological tool for independence.” Matt Schiavenza, *China Only Has One Time Zone—and That's a Problem*, THE ATLANTIC (Nov. 5, 2013), <https://www.theatlantic.com/china/archive/2013/11/china-only-has-one-time-zone-and-thats-a-problem/281136/> [<https://perma.cc/S47X-LXPJ>].

143. Eastern time is likely the least suitable national option for this reason. The best two options seem to be either mountain time to maximize convenience within the contiguous forty-eight states or Pacific time to maximize convenience for Alaska, Hawaii, and other U.S. territories in the Pacific.

### B. *The Weaker Solution: Federal Elimination of DST*

For the citizen who acknowledges the burden of time switching but is not sufficiently persuaded to endorse revising the current time-zone scheme,<sup>144</sup> a national move to simply eliminate DST time switching would at least serve to ameliorate the problem. Such legislation seems increasingly likely. The most recent action taken was a 2019 Senate bill sponsored by Florida's two senators.<sup>145</sup> The bill languished in the Committee on Commerce, Science, and Transportation, but received increasing bipartisan co-sponsorship as more states passed legislation to move to permanent DST.<sup>146</sup> The proposed legislation would result in a permanent move to DST by abolishing the biannual time-switching requirement and adjusting the UTC offset of each statute by one fewer hour.<sup>147</sup> Functionally, the time offsets between each American time zone would remain the same, but "standard time" would no longer exist.

It is worth noting that this federal legislation represents a specific preference for permanent DST as opposed to permanent standard time, or an elimination of DST. Senator Rubio's letter to the Senate justifies this preference by noting that "studies have shown . . . that extending DST can benefit the economy and reduce energy consumption."<sup>148</sup> A federal adoption of permanent DST has also received support at the executive level.<sup>149</sup> Federal legislative interest in moving to permanent DST illuminates two characteristics of our current time system. Most obviously, it shows a discontent with regular biannual time switching,<sup>150</sup> even though the switch between standard time and DST is mandated by federal statute.<sup>151</sup>

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144. The author has largely failed to convince others of this position in numerous previous attempts, but hopes that this Note has provided a better medium of transmission for the idea than the previously employed "rants at the bar."

145. Sunshine Protection Act of 2019, S. 670, 116th Cong. (2019). This bill might have been introduced in response to Florida's need for federal action in order to have their previously passed bill moving to permanent DST become effective. *See supra* notes 81–88 and accompanying text.

146. S. 670. The bill was introduced by Sen. Marco Rubio (R – FL) and is now cosponsored by eight Republicans and four Democrats. *See Cosponsors: S.670—116th Congress (2019-2020)*, CONGRESS.GOV, <https://www.congress.gov/bill/116th-congress/senate-bill/670/cosponsors>.

147. S. 670, § 2(a)–(b).

148. Letter from Marco Rubio, U.S. Senator, to U.S. Senate Committee on Commerce, Science & Transportation (Mar. 12, 2019), [https://www.rubio.senate.gov/public/\\_cache/files/d70e0976-9edd-4440-a04b-7abe3f3d9dba/B192535485AFCAE88C807BB8BA3BA454.19.03.12-smr-to-senate-commerce-committee-re-dst.pdf](https://www.rubio.senate.gov/public/_cache/files/d70e0976-9edd-4440-a04b-7abe3f3d9dba/B192535485AFCAE88C807BB8BA3BA454.19.03.12-smr-to-senate-commerce-committee-re-dst.pdf) [<https://perma.cc/VX9W-87EV>]. *But see supra* note 94 and accompanying text.

149. TRUMP TWITTER ARCHIVE (Mar. 11, 2019, 9:17 AM CDT), <https://www.thetrumparchive.com/?searchbox=%22daylight+saving%22> [<https://perma.cc/8MWZ-AUJN>] ("Making Daylight Saving Time permanent is O.K. with me!").

150. *See Reed, supra* note 80.

151. 15 U.S.C. § 260(a).

But more importantly, it shows dissatisfaction with standard time zones as presently constituted.

A potential move to permanent DST would represent the first large-scale reconsideration of what citizens want their time zone to be since the early days of the Uniform Time Act of 1966.<sup>152</sup> Society has changed markedly over the past 50 years, and it is not a stretch to assume that the ideal translation of solar hours to measured time might have changed over that time period. The apparent preference for DST over standard time, as evidenced by federal and state legislative action,<sup>153</sup> dispels the myth that the general public has any affection toward our current scheme of time-zone organization. A switch to national absolute time may be more compelling and politically viable than it appears at first glance.

#### CONCLUSION

The presently used system of time zones was designed for an analog society and is not responsive to contemporary evolutions in preferences and needs. Current approaches to reduce the impacts of inter-zone time switching are limited by the structural burden that the very existence of time zones imposes, and efforts to eliminate DST time switching on a state-by-state basis are likely to create enough new time switching confusion to offset their benefits. The most effective solution to minimize the inconvenience of time switching and to fully embrace a digital society is to consolidate time at the federal level to a single permanent national time zone. The feasibility of such a solution is demonstrated by regular time integration at an international level.

Time is often taken for granted, but the way time gets organized should not be. Besides adjustments to boundaries and DST observance, time zones have not been seriously considered since the hegemonic railroads of 1883 introduced the system that we cannot imagine living without today.<sup>154</sup> But once we imagine a world beyond the current time-zone system, the advantages of change become increasingly apparent. As the first work of

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152. The term “large-scale” is used to refer to time organization at a national level. Some states, especially near the borders of the eastern and central time zones, sought reclassification from one time zone to another after the Uniform Time Act was passed. *See generally* Kanagur v. Hare, 284 F. Supp. 426 (W.D. Mich. 1968) (describing a constitutional referendum in Michigan to use eastern time rather than central time as recommended by the Uniform Time Act); Mich. Farm Bureau v. Hare, 151 N.W.2d 797 (Mich. 1967) (same); Allied Theatre Owners of Indiana, Inc. v. Volpe, 426 F.2d 1002 (7th Cir. 1970) (describing modifications to the time zones of Indiana). Localities near time-zone boundaries have also reconsidered which time zone they want to be in. *See supra* Part II.

153. *See supra* note 88.

154. *See supra* note 16.

legal scholarship to explore standard time since 1937,<sup>155</sup> this Note is intended to prompt renewed consideration of what time it *should* be.

*Ryan Deal*

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155. *Id.*