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| Supplementary Data Table 1. Percent Darkness During Total Waking Day and During Sleep by City, Season, and Shift by Time Change Condition |
|  |  |  | Percent Darkness During Total Waking Day | Percent Darkness During Sleep | Percent Waketimes Before Sunrise |
| City | Season | Shift  | CTA | DST | ST  | CTA | DST | ST | CTA | DST | ST |
| New York City | Autumn | Day | 33% | 28% | 34% | 86% | 96% | 84% | 13% | 75% | 0% |
| Evening | 41% | 37% | 42% | 62% | 72% | 60% | 12% | 61% | 0% |
| Night | 51% | 49% | 51% | 51% | 53% | 49% | 10% | 20% | 0% |
| School | 33% | 28% | 34% | 86% | 96% | 84% | 13% | 75% | 0% |
| Winter | Day | 34% | 30% | 34% | 90% | 98% | 90% | 71% | 100% | 71% |
| Evening | 41% | 36% | 41% | 67% | 79% | 67% | 58% | 100% | 51% |
| Night | 53% | 51% | 53% | 52% | 56% | 52% | 10% | 100% | 10% |
| School | 33% | 30% | 33% | 91% | 98% | 91% | 76% | 100% | 76% |
| Spring | Day | 21% | 19% | 25% | 85% | 89% | 77% | 23% | 45% | 0% |
| Evening | 30% | 29% | 34% | 61% | 65% | 53% | 16% | 34% | 0% |
| Night | 42% | 41% | 40% | 42% | 45% | 47% | 0% | 10% | 0% |
| School | 22% | 19% | 25% | 85% | 91% | 78% | 33% | 63% | 0% |
| Summer | Day | 9% | 9% | 15% | 67% | 67% | 55% | 0% | 0% | 0% |
| Evening | 19% | 19% | 25% | 43% | 43% | 31% | 0% | 0% | 0% |
| Night | 30% | 30% | 28% | 26% | 26% | 29% | 0% | 0% | 0% |
| Chicago | Autumn | Day | 33% | 28% | 34% | 85% | 95% | 83% | 79% | 100% | 73% |
| Evening | 42% | 37% | 43% | 61% | 71% | 59% | 67% | 100% | 61% |
| Night | 51% | 49% | 51% | 51% | 53% | 49% | 40% | 100% | 20% |
| School | 33% | 28% | 34% | 86% | 95% | 84% | 81% | 100% | 75% |
| Winter | Day | 34% | 30% | 34% | 90% | 98% | 90% | 100% | 100% | 100% |
| Evening | 41% | 36% | 41% | 67% | 79% | 67% | 100% | 100% | 100% |
| Night | 53% | 51% | 53% | 52% | 56% | 52% | 100% | 100% | 100% |
| School | 34% | 30% | 34% | 91% | 98% | 91% | 100% | 100% | 100% |
| Spring | Day | 21% | 19% | 25% | 84% | 88% | 75% | 77% | 90% | 38% |
| Evening | 31% | 29% | 34% | 60% | 64% | 52% | 63% | 78% | 31% |
| Night | 42% | 40% | 40% | 41% | 45% | 46% | 20% | 40% | 10% |
| School | 22% | 19% | 25% | 84% | 90% | 77% | 79% | 96% | 50% |
| Summer | Day | 8% | 8% | 15% | 65% | 65% | 53% | 0% | 0% | 0% |
| Evening | 19% | 19% | 25% | 41% | 41% | 29% | 0% | 0% | 0% |
| Night | 29% | 29% | 28% | 25% | 25% | 28% | 0% | 0% | 0% |
| El Paso | Autumn | Day | 30% | 25% | 31% | 85% | 95% | 83% | 12% | 70% | 0% |
| Evening | 39% | 34% | 40% | 61% | 71% | 59% | 12% | 58% | 0% |
| Night | 48% | 46% | 48% | 51% | 53% | 49% | 10% | 10% | 0% |
| School | 30% | 25% | 31% | 85% | 95% | 83% | 12% | 70% | 0% |
| Winter | Day | 30% | 26% | 30% | 88% | 97% | 88% | 60% | 97% | 60% |
| Evening | 38% | 33% | 38% | 65% | 77% | 65% | 48% | 97% | 46% |
| Night | 49% | 48% | 49% | 51% | 54% | 51% | 10% | 100% | 10% |
| School | 30% | 26% | 30% | 89% | 98% | 89% | 71% | 97% | 71% |
| Spring | Day | 20% | 18% | 24% | 87% | 91% | 79% | 41% | 63% | 0% |
| Evening | 30% | 28% | 34% | 64% | 68% | 56% | 31% | 50% | 0% |
| Night | 42% | 42% | 40% | 42% | 45% | 48% | 0% | 10% | 0% |
| School | 21% | 18% | 24% | 87% | 93% | 81% | 46% | 75% | 0% |
| Summer | Day | 11% | 11% | 17% | 76% | 76% | 64% | 0% | 0% | 0% |
| Evening | 22% | 22% | 27% | 52% | 52% | 40% | 0% | 0% | 0% |
| Night | 34% | 34% | 32% | 32% | 32% | 35% | 0% | 0% | 0% |
| Los Angeles | Autumn | Day | 32% | 26% | 33% | 83% | 93% | 81% | 76% | 100% | 70% |
| Evening | 40% | 36% | 42% | 60% | 69% | 57% | 64% | 100% | 56% |
| Night | 49% | 47% | 49% | 50% | 53% | 49% | 30% | 100% | 10% |
| School | 31% | 26% | 33% | 84% | 94% | 82% | 81% | 100% | 75% |
| Winter | Day | 32% | 27% | 32% | 87% | 97% | 87% | 71% | 100% | 71% |
| Evening | 40% | 34% | 40% | 64% | 76% | 64% | 66% | 100% | 59% |
| Night | 50% | 49% | 50% | 51% | 55% | 51% | 30% | 100% | 30% |
| School | 32% | 27% | 32% | 88% | 98% | 88% | 82% | 100% | 82% |
| Spring | Day | 21% | 19% | 26% | 85% | 89% | 77% | 75% | 88% | 38% |
| Evening | 31% | 29% | 35% | 60% | 65% | 52% | 65% | 81% | 29% |
| Night | 42% | 41% | 40% | 42% | 45% | 47% | 30% | 50% | 10% |
| School | 22% | 20% | 26% | 85% | 91% | 78% | 83% | 100% | 50% |
| Summer | Day | 12% | 12% | 18% | 72% | 72% | 60% | 0% | 0% | 0% |
| Evening | 22% | 22% | 28% | 49% | 49% | 36% | 0% | 0% | 0% |
| Night | 33% | 33% | 31% | 31% | 31% | 34% | 0% | 0% | 0% |
| Anchorage | Autumn | Day | 34% | 34% | 34% | 86% | 96% | 84% | 94% | 100% | 88% |
| Evening | 40% | 37% | 41% | 62% | 72% | 60% | 91% | 100% | 84% |
| Night | 56% | 53% | 56% | 51% | 53% | 49% | 80% | 100% | 60% |
| School | 34% | 34% | 34% | 86% | 96% | 84% | 94% | 100% | 88% |
| Winter | Day | 41% | 41% | 41% | 90% | 98% | 90% | 100% | 100% | 100% |
| Evening | 43% | 41% | 43% | 67% | 79% | 67% | 100% | 100% | 100% |
| Night | 60% | 56% | 60% | 52% | 56% | 52% | 100% | 100% | 100% |
| School | 41% | 42% | 41% | 91% | 98% | 91% | 100% | 100% | 100% |
| Spring | Day | 12% | 11% | 16% | 85% | 89% | 77% | 25% | 44% | 3% |
| Evening | 22% | 21% | 26% | 61% | 65% | 53% | 16% | 32% | 0% |
| Night | 38% | 39% | 37% | 42% | 45% | 47% | 0% | 10% | 0% |
| School | 14% | 12% | 17% | 85% | 91% | 78% | 33% | 58% | 4% |
| Summer | Day | 0% | 0% | 0% | 67% | 67% | 55% | 0% | 0% | 0% |
| Evening | 0% | 0% | 0% | 43% | 43% | 31% | 0% | 0% | 0% |
| Night | 0% | 0% | 0% | 26% | 26% | 29% | 0% | 0% | 0% |

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| Supplementary Data Table 2. Average Effectiveness During Work Day and Commutes by City, Season, and Shift by Time Change Condition |
|  |  |  | Average Effectiveness Commute to Work | Average Effectiveness at Work | Average Effectiveness Commute Home |
| City | Season | Shift  | CTA | DST | ST | CTA | DST | ST | CTA | DST | ST |
| New York City | Autumn | Day | 99.26 | 99.04 | 99.11 | 97.63 | 97.52 | 97.55 | 98.57 | 98.39 | 98.42 |
| Evening | 96.71 | 96.66 | 96.57 | 97.53 | 97.60 | 97.55 | 87.37 | 87.73 | 87.81 |
| Night | 90.39 | 91.42 | 91.37 | 73.61 | 73.97 | 73.94 | 70.01 | 69.41 | 69.45 |
| School | 97.64 | 97.37 | 97.41 | 98.18 | 98.09 | 98.10 | 96.22 | 96.05 | 96.09 |
| Winter | Day | 99.03 | 99.01 | 99.03 | 97.51 | 97.50 | 97.51 | 98.35 | 98.34 | 98.35 |
| Evening | 96.60 | 96.55 | 96.60 | 97.58 | 97.53 | 97.58 | 87.87 | 88.21 | 87.87 |
| Night | 91.19 | 91.19 | 91.19 | 73.85 | 73.85 | 73.85 | 69.54 | 69.54 | 69.54 |
| School | 97.43 | 97.41 | 97.43 | 98.11 | 98.11 | 98.11 | 96.09 | 96.07 | 96.09 |
| Spring | Day | 98.86 | 99.06 | 99.07 | 97.41 | 97.53 | 97.53 | 98.17 | 98.38 | 98.34 |
| Evening | 96.38 | 96.56 | 96.62 | 97.48 | 97.60 | 97.67 | 88.49 | 88.30 | 88.00 |
| Night | 90.78 | 91.12 | 91.09 | 72.64 | 73.80 | 73.80 | 67.22 | 69.53 | 69.55 |
| School | 96.96 | 97.31 | 97.31 | 97.89 | 98.06 | 98.06 | 95.86 | 96.02 | 96.04 |
| Summer | Day | 99.08 | 99.08 | 99.12 | 97.53 | 97.53 | 97.56 | 98.40 | 98.40 | 98.40 |
| Evening | 96.79 | 96.79 | 96.64 | 97.60 | 97.60 | 97.56 | 87.11 | 87.11 | 87.46 |
| Night | 91.19 | 91.19 | 91.13 | 73.85 | 73.85 | 73.84 | 69.54 | 69.54 | 69.57 |
| Chicago | Autumn | Day | 99.26 | 99.04 | 99.11 | 97.63 | 97.52 | 97.55 | 98.57 | 98.39 | 98.42 |
| Evening | 96.73 | 96.66 | 96.60 | 97.55 | 97.60 | 97.55 | 87.33 | 87.73 | 87.77 |
| Night | 90.39 | 91.42 | 91.37 | 73.61 | 73.97 | 73.94 | 70.01 | 69.41 | 69.45 |
| School | 98.48 | 98.25 | 98.27 | 98.14 | 98.06 | 98.07 | 96.33 | 96.18 | 96.21 |
| Winter | Day | 99.03 | 99.01 | 99.03 | 97.51 | 97.50 | 97.51 | 98.35 | 98.34 | 98.35 |
| Evening | 96.60 | 96.55 | 96.60 | 97.58 | 97.53 | 97.58 | 87.87 | 88.21 | 87.87 |
| Night | 91.19 | 91.19 | 91.19 | 73.85 | 73.85 | 73.85 | 69.54 | 69.54 | 69.54 |
| School | 98.29 | 98.28 | 98.29 | 98.08 | 98.08 | 98.08 | 96.21 | 96.19 | 96.21 |
| Spring | Day | 98.85 | 99.06 | 99.06 | 97.40 | 97.53 | 97.51 | 98.15 | 98.38 | 98.32 |
| Evening | 96.35 | 96.55 | 96.62 | 97.45 | 97.60 | 97.67 | 88.57 | 88.31 | 88.00 |
| Night | 90.78 | 91.12 | 91.09 | 72.64 | 73.80 | 73.79 | 67.22 | 69.53 | 69.55 |
| School | 97.83 | 98.19 | 98.17 | 97.86 | 98.04 | 98.01 | 95.94 | 96.15 | 96.12 |
| Summer | Day | 99.09 | 99.09 | 99.12 | 97.54 | 97.54 | 97.56 | 98.42 | 98.42 | 98.40 |
| Evening | 96.77 | 96.77 | 96.64 | 97.61 | 97.61 | 97.56 | 87.27 | 87.27 | 87.46 |
| Night | 91.19 | 91.19 | 91.13 | 73.85 | 73.85 | 73.84 | 69.54 | 69.54 | 69.57 |
| El Paso | Autumn | Day | 99.26 | 99.04 | 99.11 | 97.63 | 97.52 | 97.55 | 98.57 | 98.39 | 98.42 |
| Evening | 96.73 | 96.66 | 96.60 | 97.55 | 97.60 | 97.56 | 87.32 | 87.73 | 87.76 |
| Night | 90.39 | 91.42 | 91.37 | 73.61 | 73.97 | 73.94 | 70.01 | 69.41 | 69.45 |
| School | 99.31 | 99.08 | 99.15 | 97.65 | 97.54 | 97.57 | 98.63 | 98.43 | 98.46 |
| Winter | Day | 99.09 | 99.01 | 99.09 | 97.55 | 97.50 | 97.55 | 98.38 | 98.34 | 98.38 |
| Evening | 96.45 | 96.55 | 96.45 | 97.53 | 97.53 | 97.53 | 88.20 | 88.21 | 88.20 |
| Night | 91.13 | 91.19 | 91.13 | 73.84 | 73.85 | 73.84 | 69.57 | 69.54 | 69.57 |
| School | 97.94 | 97.89 | 97.94 | 97.98 | 97.92 | 97.98 | 96.54 | 96.51 | 96.54 |
| Spring | Day | 98.83 | 99.02 | 99.09 | 97.39 | 97.51 | 97.54 | 98.15 | 98.36 | 98.36 |
| Evening | 96.46 | 96.64 | 96.62 | 97.51 | 97.64 | 97.67 | 88.32 | 88.13 | 88.00 |
| Night | 90.76 | 91.14 | 91.09 | 72.63 | 73.80 | 73.80 | 67.24 | 69.52 | 69.55 |
| School | 97.42 | 97.76 | 97.81 | 97.73 | 97.86 | 97.92 | 96.21 | 96.43 | 96.45 |
| Summer | Day | 99.12 | 99.12 | 99.12 | 97.56 | 97.56 | 97.56 | 98.40 | 98.40 | 98.40 |
| Evening | 96.64 | 96.64 | 96.65 | 97.56 | 97.56 | 97.55 | 87.46 | 87.46 | 87.39 |
| Night | 91.13 | 91.13 | 91.13 | 73.84 | 73.84 | 73.84 | 69.57 | 69.57 | 69.57 |
| Los Angeles | Autumn | Day | 99.26 | 99.04 | 99.11 | 97.63 | 97.52 | 97.55 | 98.57 | 98.39 | 98.42 |
| Evening | 96.75 | 96.66 | 96.65 | 97.57 | 97.60 | 97.57 | 87.25 | 87.73 | 87.59 |
| Night | 90.39 | 91.42 | 91.37 | 73.61 | 73.97 | 73.94 | 70.01 | 69.41 | 69.45 |
| School | 98.22 | 97.98 | 98.00 | 98.26 | 98.17 | 98.19 | 96.20 | 96.06 | 96.09 |
| Winter | Day | 99.09 | 99.01 | 99.09 | 97.55 | 97.50 | 97.55 | 98.38 | 98.34 | 98.38 |
| Evening | 96.45 | 96.59 | 96.45 | 97.53 | 97.56 | 97.53 | 88.20 | 88.04 | 88.20 |
| Night | 91.13 | 91.19 | 91.13 | 73.84 | 73.85 | 73.84 | 69.57 | 69.54 | 69.57 |
| School | 98.04 | 98.03 | 98.04 | 98.21 | 98.19 | 98.21 | 96.11 | 96.09 | 96.11 |
| Spring | Day | 98.85 | 99.06 | 99.07 | 97.41 | 97.53 | 97.53 | 98.17 | 98.38 | 98.34 |
| Evening | 96.38 | 96.56 | 96.63 | 97.47 | 97.60 | 97.66 | 88.45 | 88.30 | 87.97 |
| Night | 90.78 | 91.12 | 91.09 | 72.64 | 73.80 | 73.80 | 67.22 | 69.53 | 69.55 |
| School | 97.57 | 97.92 | 97.89 | 97.99 | 98.16 | 98.16 | 95.86 | 96.03 | 96.04 |
| Summer | Day | 99.12 | 99.12 | 99.09 | 97.56 | 97.56 | 97.53 | 98.40 | 98.40 | 98.37 |
| Evening | 96.64 | 96.64 | 96.65 | 97.56 | 97.56 | 97.55 | 87.46 | 87.46 | 87.39 |
| Night | 91.13 | 91.13 | 91.13 | 73.84 | 73.84 | 73.84 | 69.57 | 69.57 | 69.57 |
| Anchorage | Autumn | Day | 99.20 | 99.04 | 99.04 | 97.60 | 97.52 | 97.52 | 98.55 | 98.39 | 98.39 |
| Evening | 96.71 | 96.56 | 96.62 | 97.54 | 97.55 | 97.56 | 87.80 | 88.37 | 88.05 |
| Night | 90.46 | 91.42 | 91.42 | 73.65 | 73.97 | 73.97 | 69.97 | 69.41 | 69.41 |
| School | 98.90 | 98.71 | 98.71 | 97.99 | 97.91 | 97.91 | 96.46 | 96.32 | 96.32 |
| Winter | Day | 99.01 | 99.01 | 99.01 | 97.50 | 97.50 | 97.50 | 98.34 | 98.34 | 98.34 |
| Evening | 96.52 | 96.49 | 96.52 | 97.51 | 97.50 | 97.51 | 88.41 | 88.57 | 88.41 |
| Night | 91.19 | 91.19 | 91.19 | 73.85 | 73.85 | 73.85 | 69.54 | 69.54 | 69.54 |
| School | 98.76 | 98.76 | 98.76 | 97.94 | 97.94 | 97.94 | 96.34 | 96.34 | 96.34 |
| Spring | Day | 98.80 | 99.02 | 99.07 | 97.38 | 97.51 | 97.53 | 98.14 | 98.36 | 98.37 |
| Evening | 96.42 | 96.62 | 96.56 | 97.48 | 97.63 | 97.62 | 88.46 | 88.22 | 88.24 |
| Night | 90.77 | 91.15 | 91.09 | 72.64 | 73.81 | 73.80 | 67.23 | 69.52 | 69.55 |
| School | 98.33 | 98.65 | 98.68 | 97.73 | 97.88 | 97.91 | 96.05 | 96.26 | 96.29 |
| Summer | Day | 99.09 | 99.09 | 99.09 | 97.54 | 97.54 | 97.54 | 98.43 | 98.43 | 98.43 |
| Evening | 96.51 | 96.51 | 96.51 | 97.49 | 97.49 | 97.49 | 88.50 | 88.50 | 88.50 |
| Night | 91.19 | 91.19 | 91.19 | 73.85 | 73.85 | 73.85 | 69.54 | 69.54 | 69.54 |

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| Supplementary Data Table 3. Average Effectiveness and Percent Darkness During Morning Rush Hour by City, Season, and Time Change Condition |
|  |  | Average Effectiveness  | Percent Darkness |
| City | Season  | CTA | DST | ST | CTA | DST | ST |
| New York City | Autumn | 88.97 | 88.61 | 88.66 | 0% | 3% | 0% |
| Winter | 88.67 | 88.65 | 88.67 | 0% | 33% | 0% |
| Spring | 87.68 | 88.63 | 88.64 | 0% | 0% | 0% |
| Summer | 84.31 | 84.31 | 84.35 | 0% | 0% | 0% |
| Chicago | Autumn | 89.25 | 88.90 | 88.94 | 0% | 1% | 0% |
| Winter | 88.95 | 88.94 | 88.95 | 0% | 25% | 0% |
| Spring | 87.97 | 88.93 | 88.93 | 0% | 0% | 0% |
| Summer | 84.31 | 84.31 | 84.35 | 0% | 0% | 0% |
| El Paso | Autumn | 87.83 | 88.76 | 88.82 | 0% | 1% | 0% |
| Winter | 84.35 | 84.35 | 84.35 | 0% | 19% | 0% |
| Spring | 89.53 | 89.18 | 89.24 | 0% | 0% | 0% |
| Summer | 88.87 | 88.81 | 88.87 | 0% | 0% | 0% |
| Los Angeles | Autumn | 87.88 | 88.84 | 88.84 | 0% | 0% | 0% |
| Winter | 84.35 | 84.35 | 84.33 | 0% | 14% | 0% |
| Spring | 89.16 | 88.81 | 88.85 | 0% | 0% | 0% |
| Summer | 88.90 | 88.86 | 88.90 | 0% | 0% | 0% |
| Anchorage | Autumn | 89.36 | 89.05 | 89.05 | 40% | 88% | 34% |
| Winter | 89.10 | 89.10 | 89.10 | 87% | 100% | 87% |
| Spring | 88.12 | 89.06 | 89.10 | 1% | 7% | 0% |
| Summer | 84.31 | 84.31 | 84.31 | 0% | 0% | 0% |
| Included Schedules by Shift | Day | Evening | Night | School | Total |
| Commute to Work | 20 | 0 | 0 | 15 | 55 |
| Commute Home | 0 | 0 | 20 | 0 |

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| Supplementary Data Table 4. Average Effectiveness and Percent Darkness During Evening Rush Hour by City, Season, and Time Change Condition |
|  |  |  | Average Effectiveness | Percent Darkness |
|  |  |  |  |  |  |  |  |  |
| Evening  | New York City | Autumn | 97.64 | 97.53 | 97.50 | 19% | 0% | 21% |
| Winter | 97.48 | 97.45 | 97.48 | 20% | 0% | 20% |
| Spring | 97.27 | 97.47 | 97.48 | 0% | 0% | 0% |
| Summer | 97.60 | 97.60 | 97.52 | 0% | 0% | 0% |
| Chicago | Autumn | 97.65 | 97.53 | 97.51 | 24% | 0% | 27% |
| Winter | 97.48 | 97.45 | 97.48 | 25% | 0% | 25% |
| Spring | 97.25 | 97.46 | 97.47 | 0% | 0% | 0% |
| Summer | 97.59 | 97.59 | 97.52 | 0% | 0% | 0% |
| El Paso | Autumn | 97.65 | 97.53 | 97.51 | 3% | 0% | 3% |
| Winter | 97.42 | 97.45 | 97.42 | 0% | 0% | 0% |
| Spring | 97.31 | 97.50 | 97.49 | 0% | 0% | 0% |
| Summer | 97.52 | 97.52 | 97.53 | 0% | 0% | 0% |
| Los Angeles | Autumn | 97.66 | 97.53 | 97.54 | 13% | 0% | 14% |
| Winter | 97.42 | 97.46 | 97.42 | 9% | 0% | 9% |
| Spring | 97.27 | 97.47 | 97.49 | 0% | 0% | 0% |
| Summer | 97.52 | 97.52 | 97.51 | 0% | 0% | 0% |
| Anchorage | Autumn | 97.63 | 97.48 | 97.50 | 7% | 0% | 7% |
| Winter | 97.43 | 97.41 | 97.43 | 17% | 0% | 17% |
| Spring | 97.28 | 97.49 | 97.46 | 0% | 0% | 0% |
| Summer | 97.47 | 97.47 | 97.47 | 0% | 0% | 0% |
| Included Schedules by Shift | Day | Evening | Night | School | Total  |
| Commute to Work | 0 | 20 | 0 | 0 | 40 |
| Commute Home | 20 | 0 | 0 | 0 |