

REIMAGINED MOVE2040



APPENDIX 3:

System Performance



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Performance Based Planning

WAMPO uses a performance-based planning process. This involves setting performance measures based on our goals and using the results to inform future planning.

The Moving Ahead for Progress in the 21st Century Act (MAP-21) required that MPOs use a performance-based planning approach. However, after MAP-21 was signed into law in 2012, it took several years for the U.S. Department of Transportation to release final regulations defining the new, federally mandated performance measures required by the law. In the meantime, WAMPO defined our own local performance measures based on the goals laid out in our Metropolitan Transportation Plan, MOVE 2040, adopted in 2015.

Since the adoption of MOVE 2040, WAMPO adopted targets for some, but not all of these performance measures. In addition, as the MAP-21 performance measures were finalized and became effective, WAMPO has set targets for the measures federally mandated performance measures as well.

Performance-Based Planning in *REIMAGINED* MOVE 2040

One of the core tenants of performance-based planning is that we are not measuring performance for its own sake. We use these performance results to inform future planning. Performance data can influence everything from the goals that we set out to achieve to the types of projects we prioritize. The data can also influence the performance measures themselves, including what and how we measure performance and what targets we choose to set.

Public Engagement

During late 2018 WAMPO conducted an extensive public engagement process to gather input for the new MTP, including an online component and presentations to dozens of city council, county commission, and stakeholder group meetings. As part of this process, WAMPO presented data from our performance measures to help inform members of the public how our transportation system was working and provide context for their input.

Between the 17 federally mandated performance measures and the 32 MOVE 2040 performance measures, WAMPO had a total of 49 measures available. Rather than overwhelming the public with all of these, we chose to concentrate on three areas: safety, congestion, and infrastructure condition.

For safety, we highlighted the rising number of fatalities in the region. However, serious injuries were declining. Non-motorized fatalities and serious injuries dipped during the early part of the decade but seemed to be rising again.

On congestion, we emphasized that the region had only 26 seconds of delay per average rush-hour trip, forecast to rise to 45 seconds by 2040. Our freeway system is fairly reliable, with a trip during the worst weekday of the month, taking only about 50% longer than it would without congestion. Finally, some bottlenecks do pose an issue, with freeway bottlenecks requiring up to 13% longer to pass through during rush hour and interchange bottlenecks up to 19% longer.

While we did not use specific performance data on infrastructure condition, we did note that based on its targets, KDOT expects pavement condition in the state to decline.

During this process, the input we received reflected the public's reaction to the performance data, emphasizing concerns about safety and bottlenecks.

Vision and Outcomes

Based on this input, WAMPO adopted a vision and a series of outcome statements. Several of the outcome statements reflected the performance data we provided during the initial public engagement, including Safety and Health, and the System Performance and System Condition components of the Mobility and Economy outcome statement.

In turn, for *REIMAGINED MOVE 2040*, we have reorganized the performance measures around the five outcome statements:

- Safety and Health
- Mobility and Economy
 - System Performance
 - System Condition
- Equity and Diversity
- The Multimodal Network
- Quality of Place and Talent

As part of this reorganization, we have dropped some of the local performance measures that were initially adopted as part of *MOVE 2040*. Some of these measures simply did not align with the new outcomes of *REIMAGINED MOVE 2040*. Others were duplicative of the federal performance measures. Because WAMPO adopted our measures before the federal performance measures mandated in MAP-21 were finalized, we found ourselves with several cases where we were measuring the same thing in two slightly different ways. In some of these cases, we have dropped the local measures and will rely solely on the federal measures going forward (safety, for instance). In other cases, however, the federal measures are not really a match conditions in the WAMPO region. For instance, the federal congestion measures are designed for areas with more congestion than we have, resulting in a system that is easily 99% reliable. In these cases, we are keeping the local measures in addition to the federal ones.

Targets

WAMPO has set targets for all of the federally required performance measures. In some cases, we have set targets for the *MOVE 2040* measures as well. Targets have not yet been set for any of the new performance measures developed for *REIMAGINED MOVE 2040*. We will be carrying out a target setting process for those measures going forward.

Targets are intended to provide context for performance measures. They are benchmarks by which we can judge our performance. In most cases, WAMPO's performance targets are set based on the expected level of performance. When it comes to measures like the number of non-motorized fatalities and serious injuries, the expected level of performance is not necessarily the level of performance than we want. If we want a better level of performance on any of these measures, we need to dedicate the resources to change the level of expectation going forward.

Performance Measures and System Performance Report

Safety & Health

- Number of Fatalities*
- Fatally Rate per 100 million VMT*
- Number of Serious Injuries*
- Serious Injury rate per 100 million VMT*
- Number of non-Motorized Fatalities and Serous Injuries*
- Ozone Levels Measured Per Federal Regulations

*Federally mandated performance measure



Safety Data and Targets

The federal safety performance measures are all measured using a five-year rolling average. The most recent data available as of the adoption of *REIMAGINED MOVE 2040* is for 2018. This data includes all crashes involving a motor vehicle on public roads. These are reported to the Kansas Department of Transportation (KDOT) by local law enforcement agencies.

Number of Fatalities

Fatalities in the WAMPO region have been rising for the past decade. Between 2008-2012 we averaged 48.8 fatalities per year. By 2014-2018 that had increased to an average of 58.6 fatalities per year. This exceeds WAMPO's target of no more than 54 fatalities per year for the 2014-2018 period.

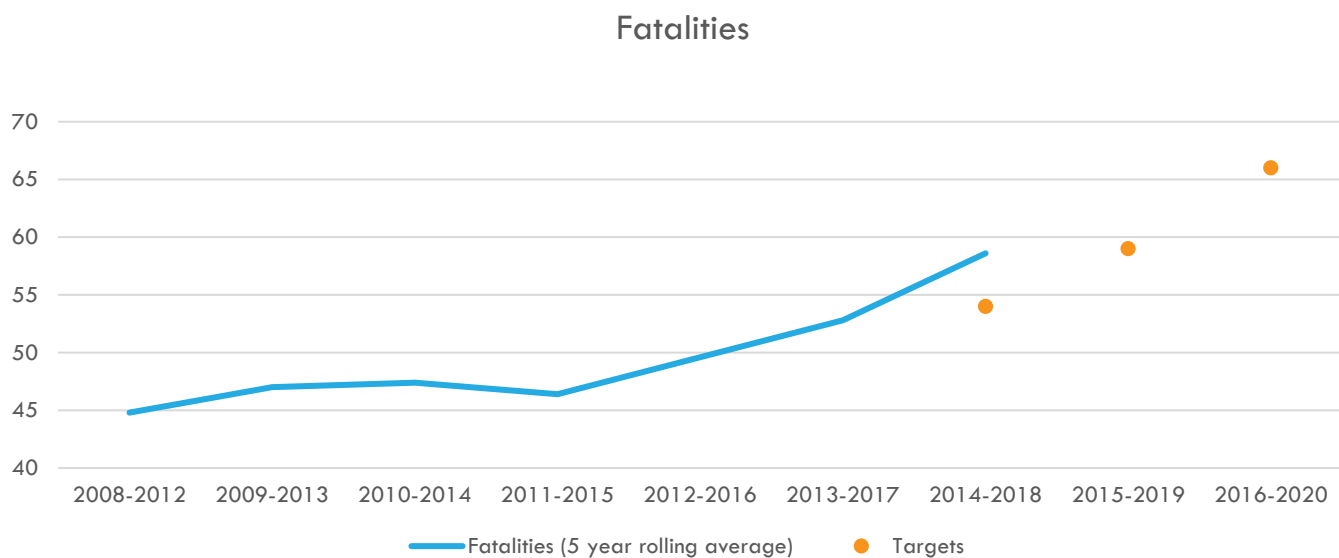


Figure 1: Fatalities

The rate of increase has only risen in recent years. Looking forward, WAMPO has set a target of no more than 59 fatalities per year for 2015-2019. For the first four years of that period, we have already averaged more than 60 fatalities per year, so we will likely exceed this target as well. The 2016-2020 target is no more than 66 fatalities per year.

Fatality Rate per 100 million VMT

Fatalities have been increasing faster than the number of vehicle-miles traveled in the WAMPO region since 2011-2015.

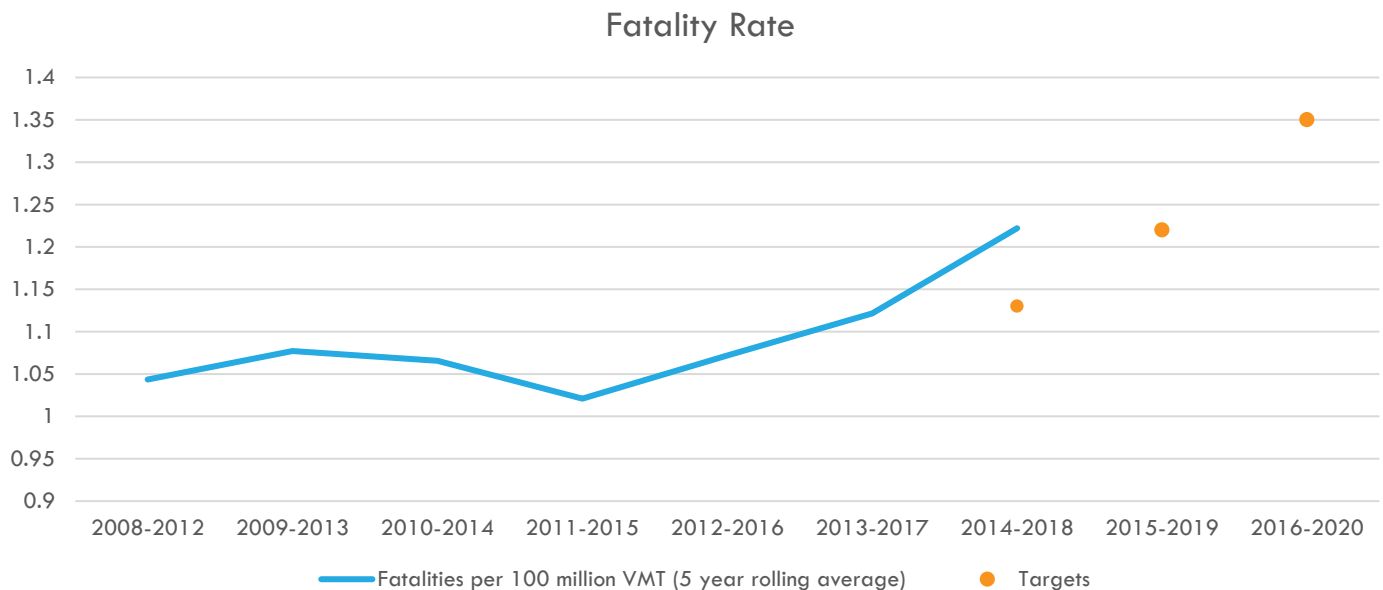


Figure 2: Fatality Rate

WAMPO's 2014-2018 target for this measure was no more than 1.13 fatalities per 100 million vehicle-miles traveled per year. During that period, we had 1.22 fatalities per 100 million vehicle-miles traveled per year, exceeding the target. The target for the 2015-2019 period is 1.22 fatalities per 100 million vehicle-miles traveled. We are quite likely to exceed that target as well. The 2016-2020 target is no more than 1.35 fatalities per 100 million vehicle miles traveled per year.

Number of Serious Injuries

In contrast, the number of serious injuries in the WAMPO region have been on a long-term decline. From an average of 230 per year from 2008-2012, they have dropped to an average of just 146.8 per year from 2014-2018. This represents a 36% drop in serious injuries. That said, the 2014-2018 average does slightly exceed our target of no more than 138 per year.

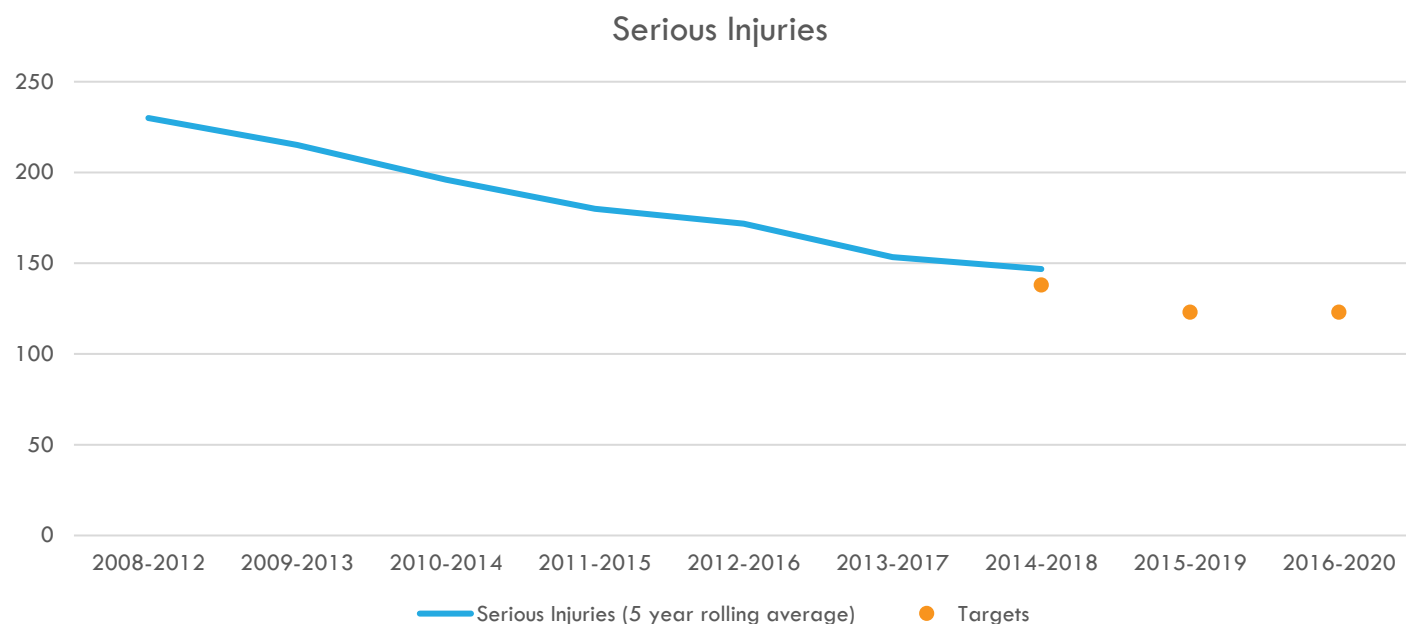


Figure 3: Serious Injuries

Our targets for 2015-2019 and 2016-2020 are no more than 123 serious injuries per year.

Serious Injury Rate per 100 million VMT

Accounting for the growth in the number of miles driven in the WAMPO region accentuates the decline in serious injuries.

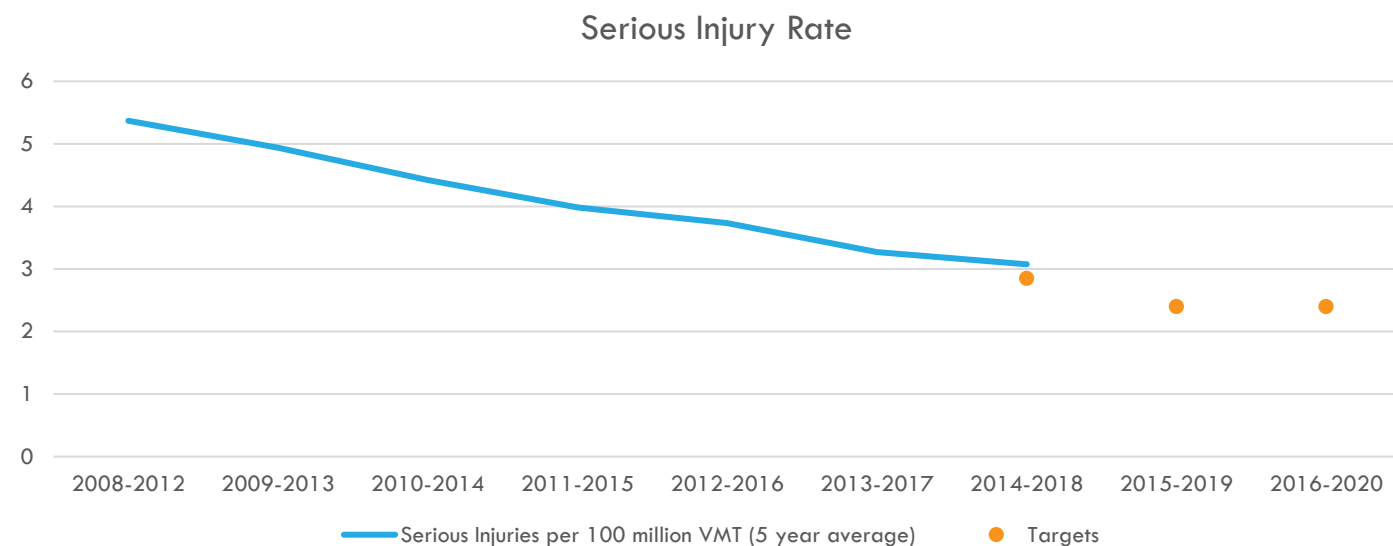


Figure 4: Serious Injury Rate

WAMPO's target for 2014-2018 was no more than 2.85 serious injuries per 100 million vehicle-miles traveled per year. However, the rate of the decline in serious injuries as decreased slightly, leading us to slightly exceed our target with an average of 3.07 serious injuries per 100 million vehicle-miles traveled per year. Our targets for 2015-2019 and 2016-2020 are no more than 2.4 serious injuries per 100 million vehicle-miles traveled per year.

Number of non-Motorized Fatalities and Serious Injuries

Non-motorized fatalities and serious injuries performance measure tracks fatalities and serious injuries among bicyclists, pedestrians, and other non-motorized users of the transportation system. The number of non-motorized fatalities and serious injuries tends to be somewhat more volatile than the other safety performance measures, given the smaller number of such incidents. During the 2008-2012 period, we had an average of 29.2 non-motorized fatalities and serious injuries per year. This declined over the next several years, reaching a low of 25.2 per year from 2010-2014 before rebounding to an average of 29 per year from 2012-2016. This increase led WAMPO to set a target of no more than 35 per year in 2014-2018 and 2015-2019. Fortunately, since then, the number of non-motorized fatalities and serious injuries has largely leveled off, averaging between 27.8 and 28.2 per year in 2013-2017 and 2014-2018, respectively. This is well below our target for this measure.

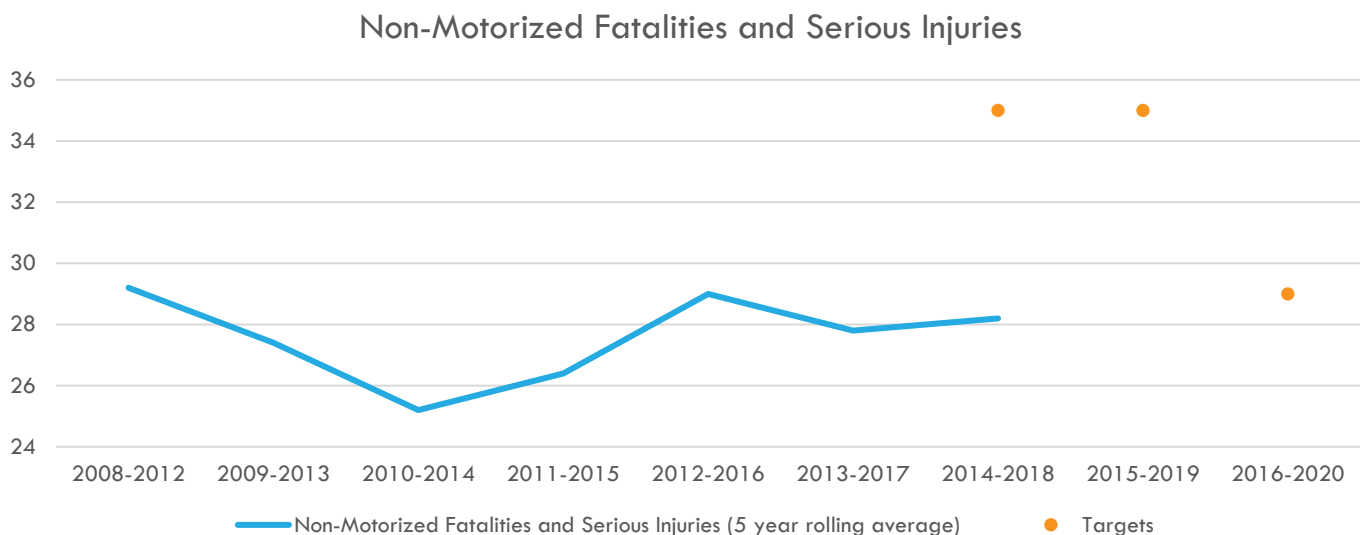


Figure 5: Non-Motorized Fatalities and Serious Injuries

Our 2016-2020 target for this measure is no more than 29 non-motorized fatalities and serious injuries per year.

Ozone Levels Measured Per Federal Regulations

In the mid-2010s, the Wichita region was in significant danger of being designated as a non-attainment area for ozone under the National Ambient Air Quality Standards. Being designated as a non-attainment area would have had far-reaching consequences for transportation and industry in the region. While the region's air quality has improved in recent years, WAMPO continues to monitor ozone levels as one of our performance measures.

There are three ozone monitoring sites in the WAMPO region, maintained by the Kansas Department of Health and Environment: one in central Wichita, one to the north in the town of Sedgwick, and one to the south in Peck. The federal standard for ozone is to measure the 4th highest day of the year and to average this measurement over a 3-year period.

Ozone Levels in the WAMPO Region

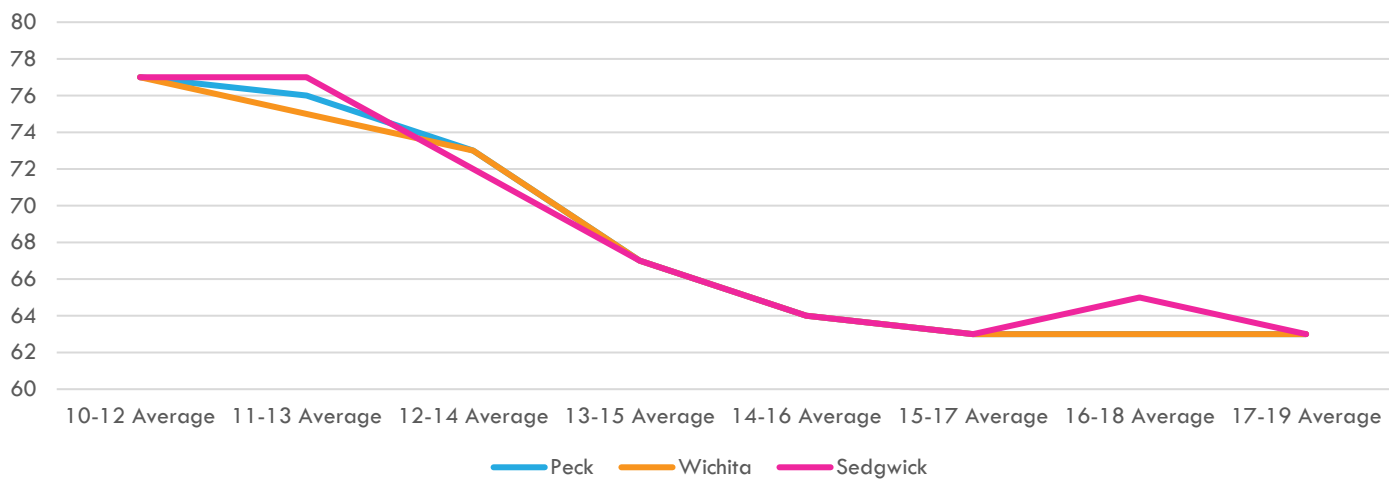


Figure 6: Ozone Levels

During the 2010-2012 period, the average at all three sites in the region was 77 parts per billion, slightly above the standard of 75 parts per billion. In 2015 the Environmental Protection Agency tightened the standard to 70 parts per billion. However, air quality in the Wichita region had been improving, dropping to 67 parts per billion at all three sites from 2013-2015. Since then, ozone levels have hovered in the low 60s, with all three sites at 63 parts per billion during 2017-2019. Unless the standard is tightened again or air quality in the region substantially degrades, we are likely to remain in attainment.

Mobility & Economy

Performance measures for Expanding the Economy Through Mobility are divided into measures examining System Performance (congestion and reliability) and System Condition (the physical condition of pavement and bridges in the region).



Mobility & Economy – System Performance

Unlike other areas where WAMPO has mostly adopted the federal performance measures to eliminate duplication, we retain parallel federal and local measures for system performance. The federal system performance measures are designed for areas with more congestion than ours, resulting in a system that is easily 99% reliable. The local performance measures are designed to be more sensitive to the low levels of congestion we experience in the WAMPO region and to better address local needs.

- Percentage of person-miles traveled on the Interstate that are reliable*
- Percentage of person-miles traveled on the non-Interstate NHS that are reliable*
- Truck Travel Time Reliability Index*
- Delay across the system as measured by WAMPO's Travel Demand Model
- Delay across identified areas of concern measured using the National Performance Management Research Dataset (NPMRDS)
- Travel time uncertainty measured region-wide using NPMRDS
- Accident clearance time from WICHway

*Federally mandated performance measure

Percentage of person-miles traveled on the interstate that are reliable and percentage of person-miles traveled on the non-interstate national highway system that are reliable.

The Interstate and non-Interstate National Highway System (NHS) reliability measures compare the average travel time on each road segment with the 80th percentile travel time. This is basically comparing the travel time on an average day with the travel time on the worst day of the week. If the travel time on the worst day of the week takes more than 50% longer than the average day, the segment is unreliable. If it is less than 50% longer, the segment is reliable.

This comparison is made for four different periods: weekday mornings, weekday middays, weekday evenings, and weekends. If even one of these is unreliable, the segment is considered unreliable. The segments are weighted by person-miles of travel on that segment to produce the final measure.

These measures look at the performance of the National Highway System or NHS. The National Highway System consists of the most important highways, those considered "important to the nation's economy, defense, and mobility." In the WAMPO region, the NHS consists of the interstates (I-35, I-135, and I-235) as well as major US and State Highways, including US-54/400, K15, K96, K254, and portions of K42. The reliability measures are calculated separately for the Interstate System and the remaining portions of the NHS.

National Highway System

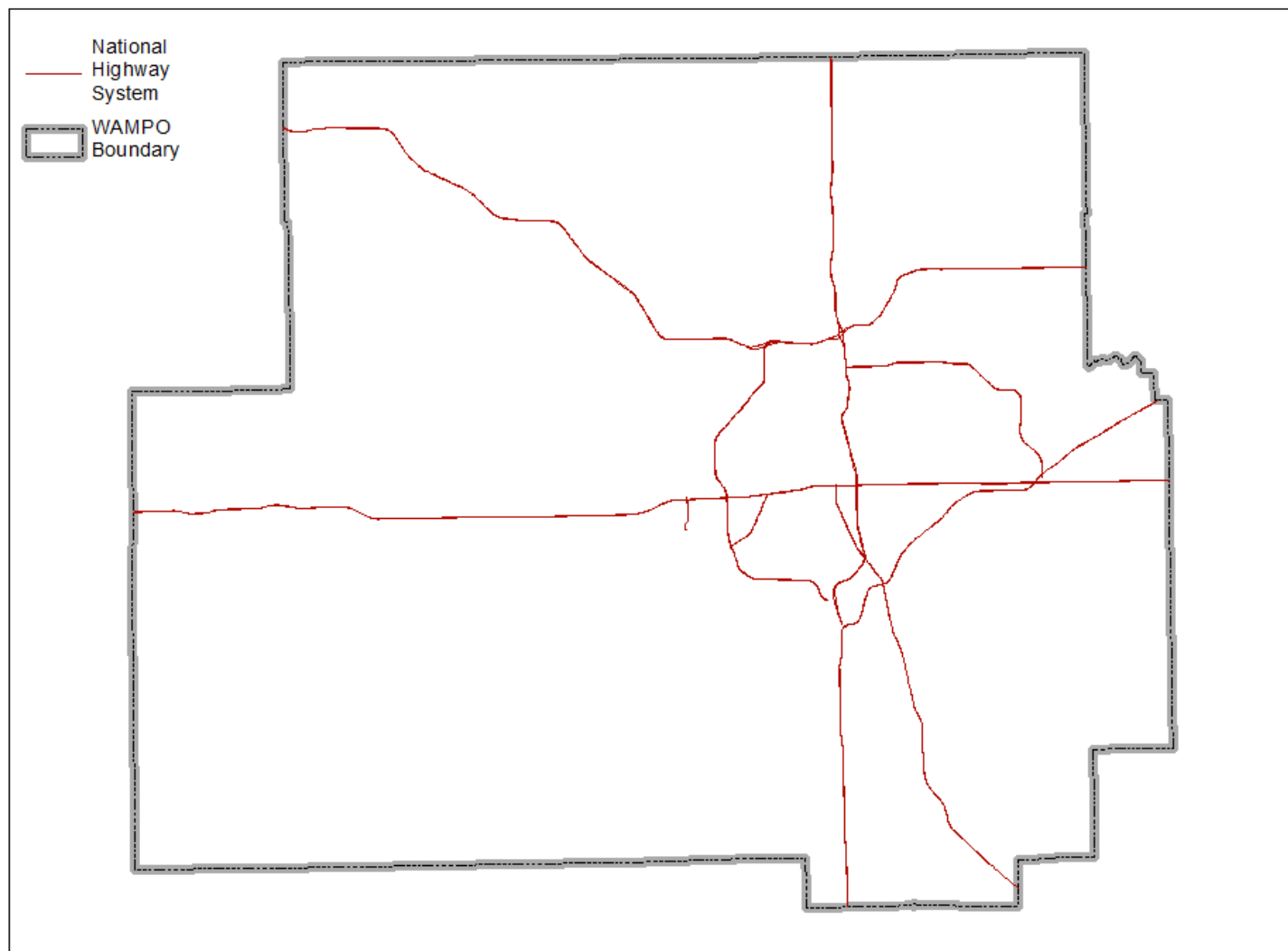


Figure 7: Map of the NHS in the WAMPO region

The data for this measure comes from the National Performance Management Research Data Set (NPMRDS). This is a dataset of average real-world travel times on roadway segments gathered from cellphones and in-vehicle navigation systems. It covers the entire NHS.

WAMPO's 2022 targets for the percentage of person-miles that are reliable are 98% for both the Interstate and non-Interstate NHS. Since 2016 the reliability for the Interstates in our region has never dropped below 98.8%, and the reliability of the non-Interstate NHS has never dropped below 99.3%.

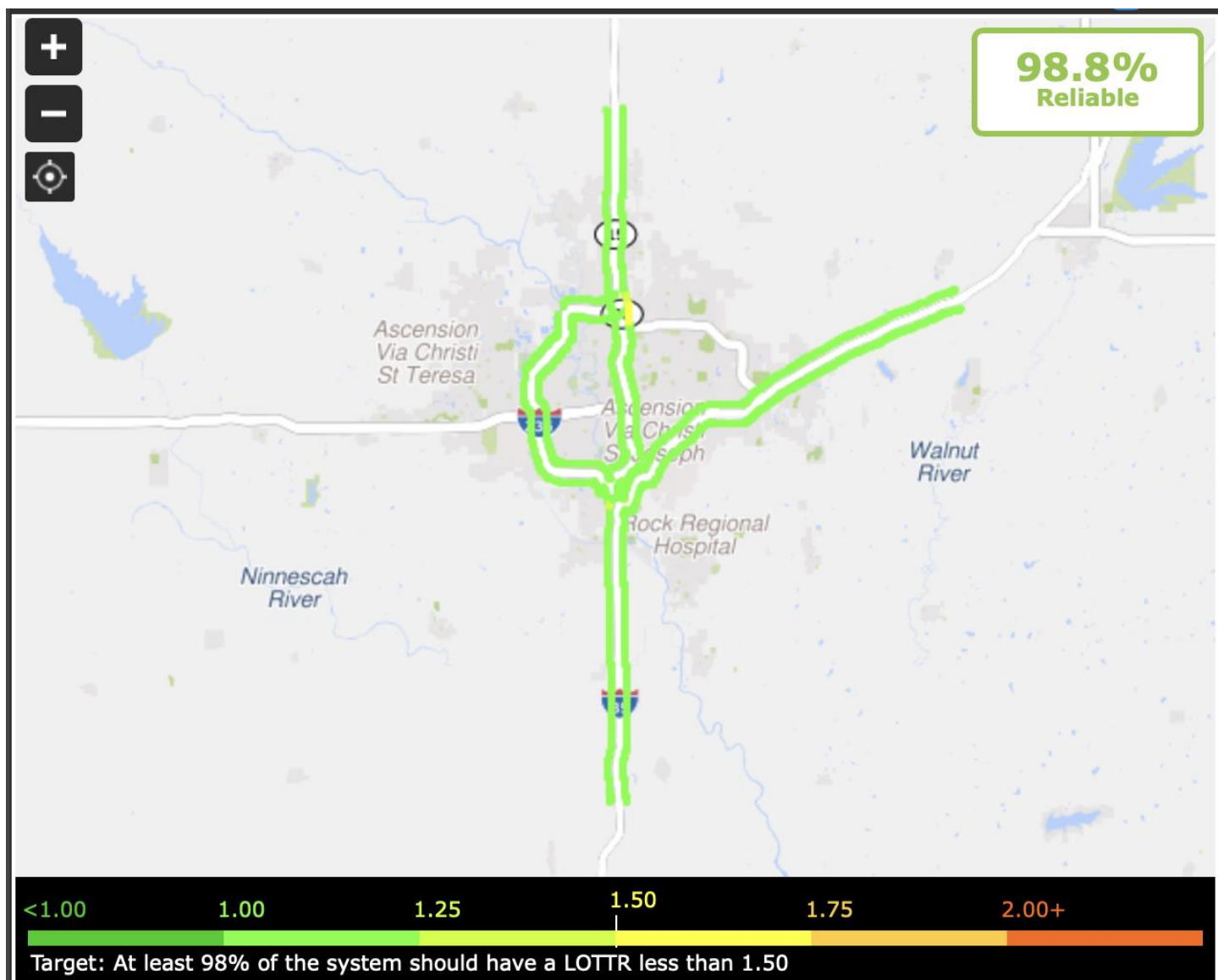


Figure 8: Map of 2019 Interstate Travel Time Reliability

KS - Wichita Area MPO, Wichita (WAMPO)

MAP-21 Percent of the Person-Miles Traveled on the Interstate That Are Reliable (the Interstate Travel Time Reliability measure)

Target
at least
98.0%

Year's Performance

2014	👍 99.9%
2015	👍 99.8%
2016	👍 100.0%
2017	👍 98.9%
2018	👍 100.0%
2019	👍 98.8%
2020	👍 100.0%

Target: At least 98% of the system should have a LOTTR less than 1.50

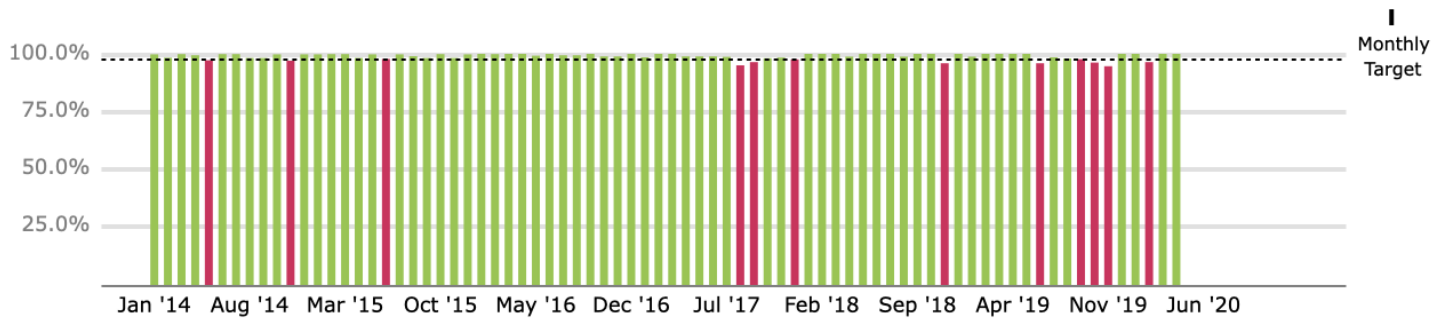


Figure 9: Interstate Travel Time Reliability 2014-2019

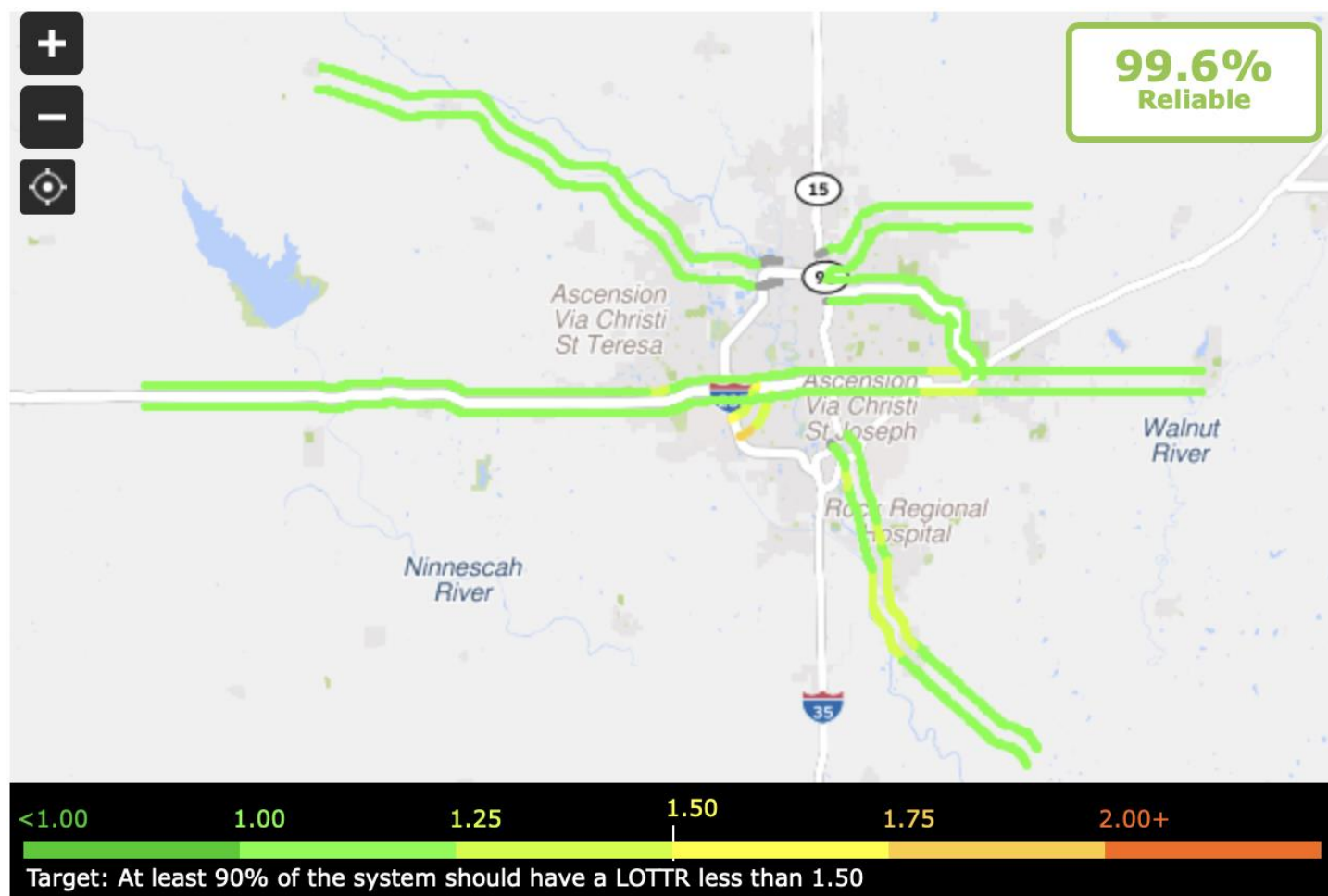


Figure 10: Map of 2019 non-Interstate NHS Travel Time Reliability

KS - Wichita Area MPO, Wichita (WAMPO)

MAP-21 Percent of the Person-Miles Traveled on the Non-Interstate NHS That Are Reliable (the Non-Interstate NHS Travel Time Reliability measure)

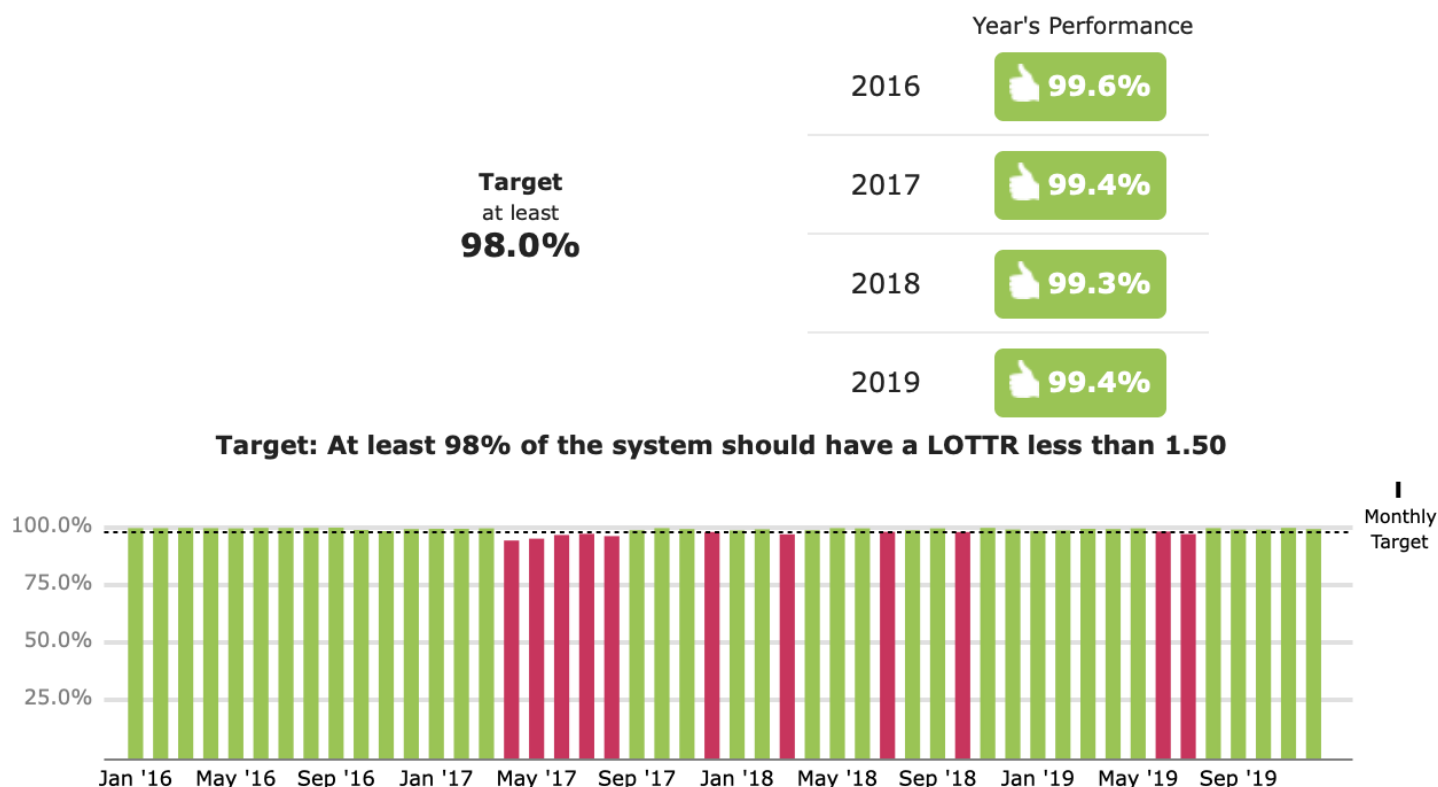


Figure 11: Non-Interstate NHS Travel Time Reliability 2016-2019

Truck Travel Time Reliability Index

The Truck Travel Time Reliability Index measure compares the average truck travel time on each segment of the Interstate system, with the 95th percentile travel time. This is basically comparing the travel time on an average day with the worst day of the month. The index is the 95th percentile travel time divided by the average travel time, so an index of 1.2 indicates that it would take 20% longer for a truck to travel that segment on the worst day of the month.

This comparison is made for five different periods: weekday mornings, weekday middays, weekday afternoons, overnights, and weekend days. The Truck Travel Time Reliability Index for the segment is the value for the worst of these five time periods. The index for each segment is weighted by length and averaged across the entire WAMPO region to get the Truck Travel Time Reliability Index for the region.

WAMPO's 2022 target for the Truck Travel Time Reliability Index is less than 1.25. Since 2016 it has never been higher than 1.21.

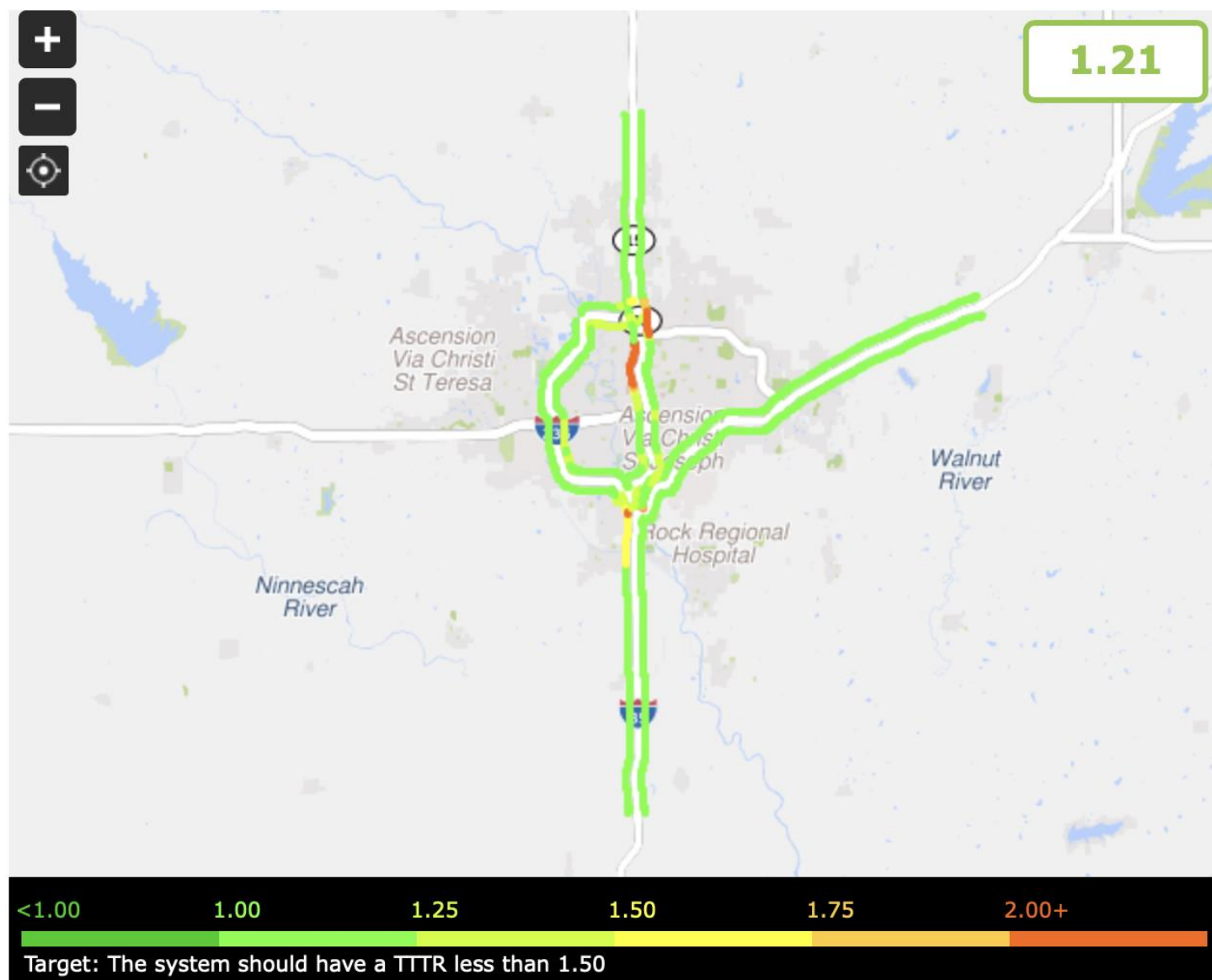


Figure 12: Map of 2019 Interstate Truck Travel Time Reliability

KS - Wichita Area MPO, Wichita (WAMPO)

MAP-21 Truck Travel Time Reliability Index



Target: The system should have a TTTR less than 1.25

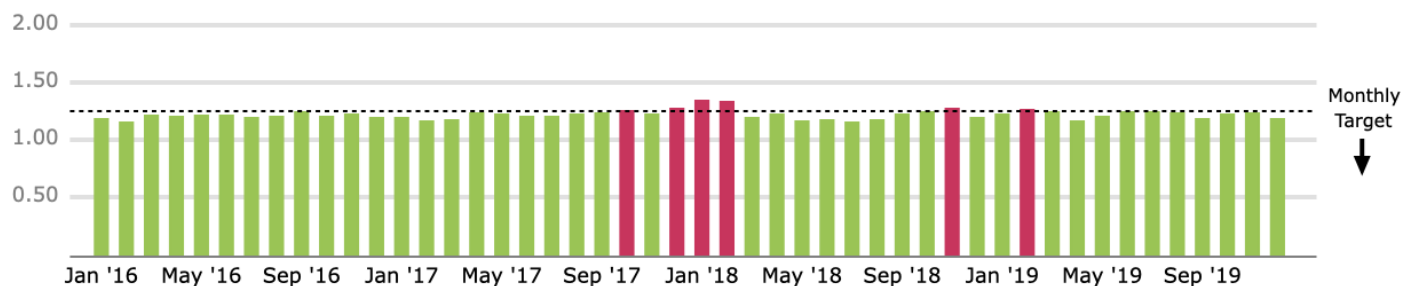


Figure 13: Interstate Truck Travel Time Reliability 2016-2019

Delay across the system as measured by WAMPO's Travel Demand Model

Given the WAMPO region's low levels of congestion and the accompanying limitations of the federal performance measures, we have adopted delay across the system as measured by our Travel Demand Model to provide a broader overview of the performance of the entire system in a single measure.

This measure uses data from the WAMPO Travel Demand Model. The model is based on the standard the 4-step modeling process. Unlike other options, it allows future system performance to be forecast into the future. More detail on the model can be found in the Travel Demand Model Appendix.

This performance measure looks at the average delay per trip during the afternoon peak period (5-6 pm). This was calculated for the model's base year of 2017, as well as for its horizon year of 2020.

In the 2017 base year scenario, the average delay per trip was 1 minute 23 seconds. In the 2040 scenario, the delay would be 2 minutes, 39 seconds. To provide some context, the model shows that the average trip time is approximately 10 minutes. So during the afternoon peak period delay only accounts for about 14% of the travel time (rising to 26% in 2040).

WAMPO adopted targets for this measure in 2016. However, in preparation for *REIMAGINED MOVE 2040*, we updated the Travel Demand Model, rendering the old targets obsolete. We will conduct a new target setting process based on the new model.

Delay across identified areas of concern measured using the National Performance Management Research Dataset (NPMRDS)

To add some geographic specificity to the congestion-related performance measures, WAMPO also measures delay across identified areas of concern. These "identified areas of concern" are the sites of potential bottlenecks. They are the parts of the system where we would expect performance to be the worst.

This measure currently uses a set of potential bottlenecks identified in the WAMPO 2010 Freight Plan. These locations are shown on the map below and listed in the table that follows. WAMPO plans to update this list of potential bottlenecks in the near future. Several of these locations are already the subject of major KDOT projects to remedy outdated interchange designs.

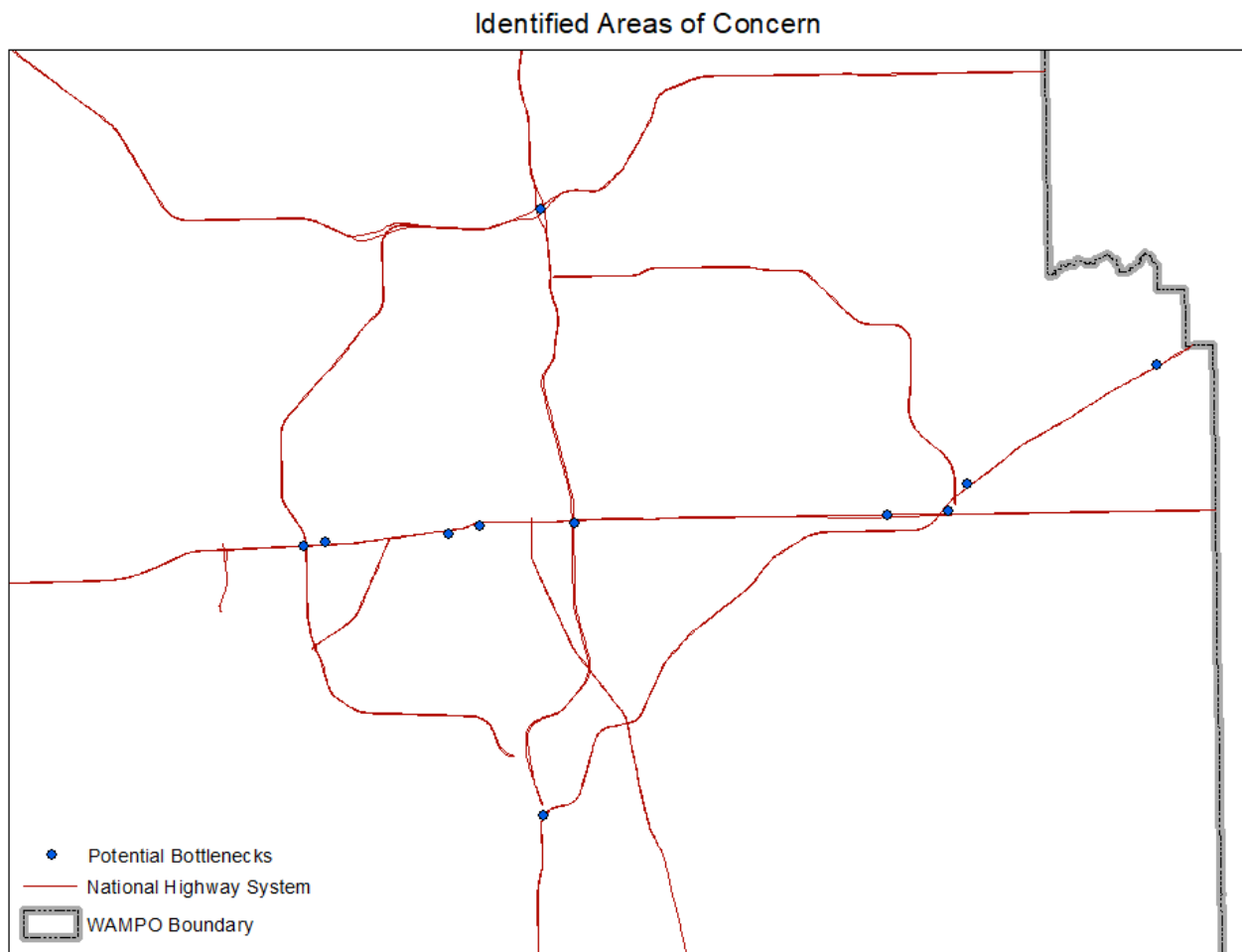


Figure 14: Map of Identified Areas of Concern

Much like the federal measures, this performance measure uses NPMRDS data to measure real-world delay. We use this data to calculate the Travel Time Index within a half-mile of the identified areas of concern. The Travel Time Index is the ratio of the average peak-period travel time to free-flow travel time. For instance, a Travel Time Index of 2 would indicate that a potential bottleneck that normally takes one minute to traverse would take two minutes during the peak period.

The average peak period travel time for each segment was calculated by looking at all of the average travel times for 5 minute periods between 5 pm and 6 pm for a given month and taking the 50th percentile travel time. The free flow travel time was calculated by looking at all the average travel times for 5 minute periods outside of the peak hours (before 7 am, from 8 am to 5 pm, and after 6 pm) and taking the 15th percentile travel time.

The travel time index is calculated for each segment within half a mile of each potential bottleneck location. Each segment's travel time index is weighted by length to come up with an overall travel time index within a half-mile of the potential bottleneck location.

Rather than set targets individually for each of the potential bottlenecks, WAMPO has grouped into freeways and interchanges. The freeway category includes mainline locations on divided, limited access roadways. The Interchanges category includes potential bottleneck locations that are located at interchanges between divided, limited access roadways.

Location	Type	TTI
Kellogg and approximately Tracey	Freeway	1.14
Kellogg and Seneca	Freeway	1.14
Kellogg and McLean	Freeway	1.08
I-35 and Prairie Creek Road	Freeway	1.10
Kellogg and Greenwich	Freeway	1.05
Kellogg and I-235	Interchange	1.04
I-135 and I-235 (North Junction)	Interchange	1.24
Kellogg and K-96	Interchange	1.07
Kellogg and I-135	Interchange	1.15
I-35 and I-135	Interchange	1.10
I-35 at exit to K-96	Interchange	1.08

Table 1: 2019 Travel Time Index (within ½ mile of potential bottleneck locations)

For the freeway locations, the average monthly Travel Time Index ranged from 1.08-1.14 in 2019. To define the acceptable level of congestion for this metric, WAMPO has adopted a target of 1.2 (roughly equivalent to 55 mph). For the interchange locations, the Travel Time Index ranged from 1.04-1.23. The adopted target is 1.4 (equivalent to 45 mph).

Because the current values for this metric are lower (better) than the targets, this metric indicates that the WAMPO region does not have an unacceptable level of congestion, even in the areas where we would expect the worst system performance.

Travel time uncertainty measured region-wide using NPMRDS

Travelers' perception of congestion is often driven not by typical performance, but by days when performance is particularly bad. Similarly, freight shippers who need to ensure that deliveries happen on time must build time into their schedules to account for days with longer-than-usual delays. Even if the transportation system performs well on a typical day, unreliability on a few days per month can impose significant costs. The effects of unreliability can be measured by looking at the uncertainty in the travel time.

The federal measures examining the percentage of person-miles traveled on the Interstate, and the non-Interstate NHS that are reliable are intended to measure these effects. However, the highway system in the WAMPO region has been more than 98.8% reliable since 2016. To get a finer-grained look at variations in travel time reliability in our region WAMPO has adopted a more stringent travel time reliability measure.

As with the federal measures, we use the NPMRDS data to compare the worst travel times with more typical conditions. The federal measures compare the 80th percentile travel time with the 50th percentile travel time during that same time of day. This is essentially comparing the worst day of the week with the average day of the week during that time period (the worst morning rush hour compared to the average morning rush hour, for weekday mornings, weekday middays, weekday evenings, and weekends).

WAMPO's travel time uncertainty measure looks at the 95th percentile travel time, roughly equivalent to the worst day of the month. We compare this to the 15th percentile travel time outside of the peak hours (before 7 am, from 8 am to 5 pm, and after 6 pm), representing the free-flow travel time with no congestion. The ratio between the two is the Planning Time Index. This makes the measure very sensitive to disruptions to the regular travel patterns, including weather events, accidents, and other special events. A Planning Time Index of 2 means that a trip that takes 10 minutes outside of rush hour would take 20 minutes on the worst weekday PM peak hour of the month. This is a much more stringent standard than the federal measure.

To remove any seasonal effects and reduce the impact of random variation, WAMPO employs a 12-month rolling average. Since January 2018, the average of the previous 12 months has ranged between 1.30 and 1.38. The target for this measure is 1.6.

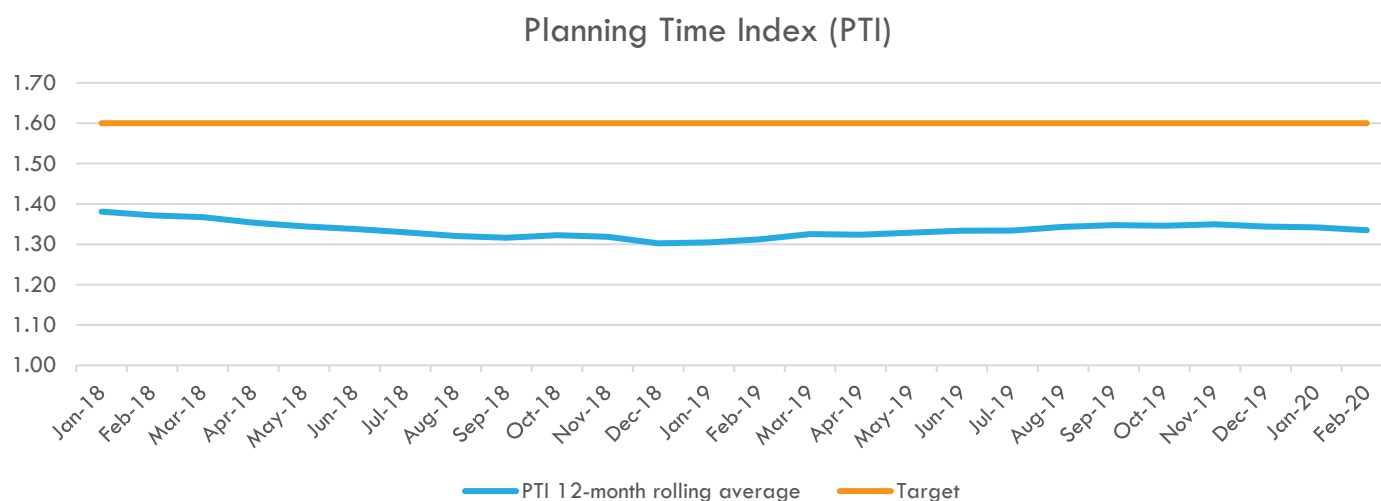


Figure 15: Planning Time Index, 12-month rolling average

Because the current values for this metric are lower (better) than the targets, this metric indicates that the WAMPO region does not have an unacceptable level of congestion, even during incidents, inclement weather, and special events.

Congestion Management Process

MPOs like WAMPO are required to have a Congestion Management Process (CMP). The CMP is a performance-based planning process focused specifically on congestion. It entails establishing performance measures, deciding what constitutes an acceptable level of congestion based on those measures, and proposing congestion management strategies to help achieve that performance.

The three previous measures, delay across the system, delay across identified areas of concern, and region-wide travel time uncertainty are part of WAMPO's CMP. Based on these performance measures and their targets, the WAMPO region does not suffer from an unacceptable level of congestion. Accordingly, WAMPO is not proposing the addition of any congestion management strategies for implementation as part of *REIMAGINED MOVE 2040*.

Accident clearance time from WICHway

One area of emphasis in the WAMPO region has been reducing clearance time for crashes. Decreasing the amount of time that a crash scene is blocking or slowing traffic decreases the opportunities for secondary accidents. Because secondary accidents usually involve vehicles traveling at freeway speeds colliding with slowed or stationary vehicles, they are often very severe, so reducing them is a priority.

Efforts to reduce secondary crashes in the Wichita region have focused on KDOT's WICHway Traffic Management Center, as well as providing Traffic Incident Management training to police, fire, EMS, KDOT personnel, and the towing industry.

These efforts have led to a reduction in accident clearance time from 177 minutes when WICHway first opened in 2013 to 52 minutes or less every year, starting in 2014.

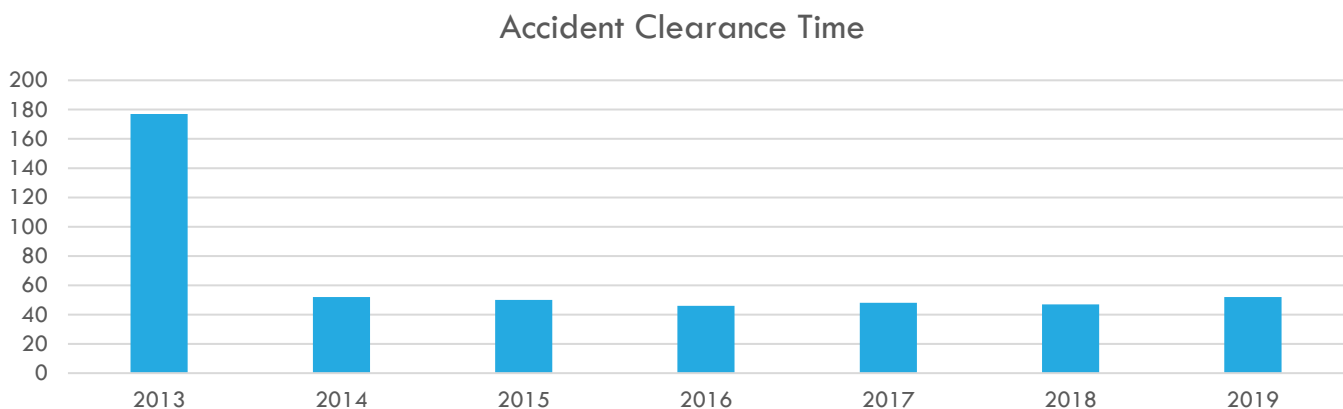


Figure 16: Accident clearance time from WICHway

This is a new performance measure in *REIMAGINED MOVE 2040*, and we have not yet set a target for it.

Mobility & Economy – System Condition

- Percentage of Interstate pavements in Good condition*
- Percentage of Interstate pavements in Poor condition*
- Percentage of non-Interstate NHS pavements in Good condition*
- Percentage of non-Interstate NHS pavements in Poor condition*
- Percentage of NHS Bridges by deck area in Good condition*
- Percentage of NHS Bridges by deck area in Poor condition*
- Percentage of bridges weighted by deck area that are not functionally obsolete or in poor condition
- Local Pavement Performance Measure to be defined when data is available.



*Federally mandated performance measure

Percentage of Interstate pavements in Good condition, Percentage of Interstate pavements in Poor condition, Percentage of non-Interstate NHS pavements in Good condition, and Percentage of non-Interstate NHS pavements in Poor condition

The federal performance measures include four measures related to pavement condition. These performance measures look at the condition of pavement on the most important roadways: the Interstate Highway System, and the non-Interstate National Highway System (NHS).

KDOT gathers pavement condition data for the Interstate and non-Interstate NHS in the WAMPO region. They have provided us with data for 2016-2018 (2019 data will be available in mid-2020). It should be noted that in 2016 KDOT was still adapting its data-gathering methodologies to new federal requirements, so changes between 2016 and 2017 may be due in part to changes in how the data was gathered, rather than changes in pavement quality.

The percentage of pavement on the Interstate in good condition has mostly held steady, ranging from 61.71% to 59.17% from 2016 to 2018. The percentage of pavement in poor condition on the Interstate has remained low, between 1.30% and 0.17% during that same period.

WAMPO has set a 2022 target of at least 65% of Interstate pavement in good condition no more than 0.5% of Interstate pavement in poor condition.

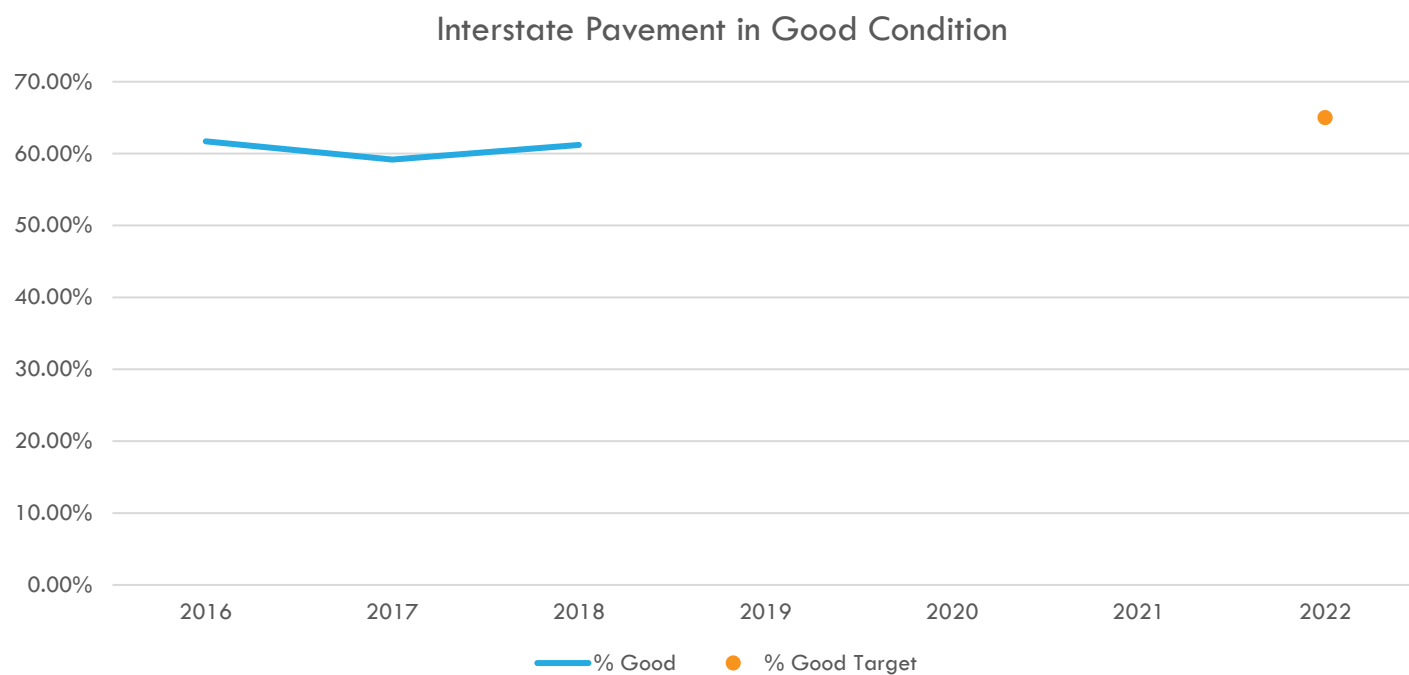


Figure 17: Interstate pavement in good condition

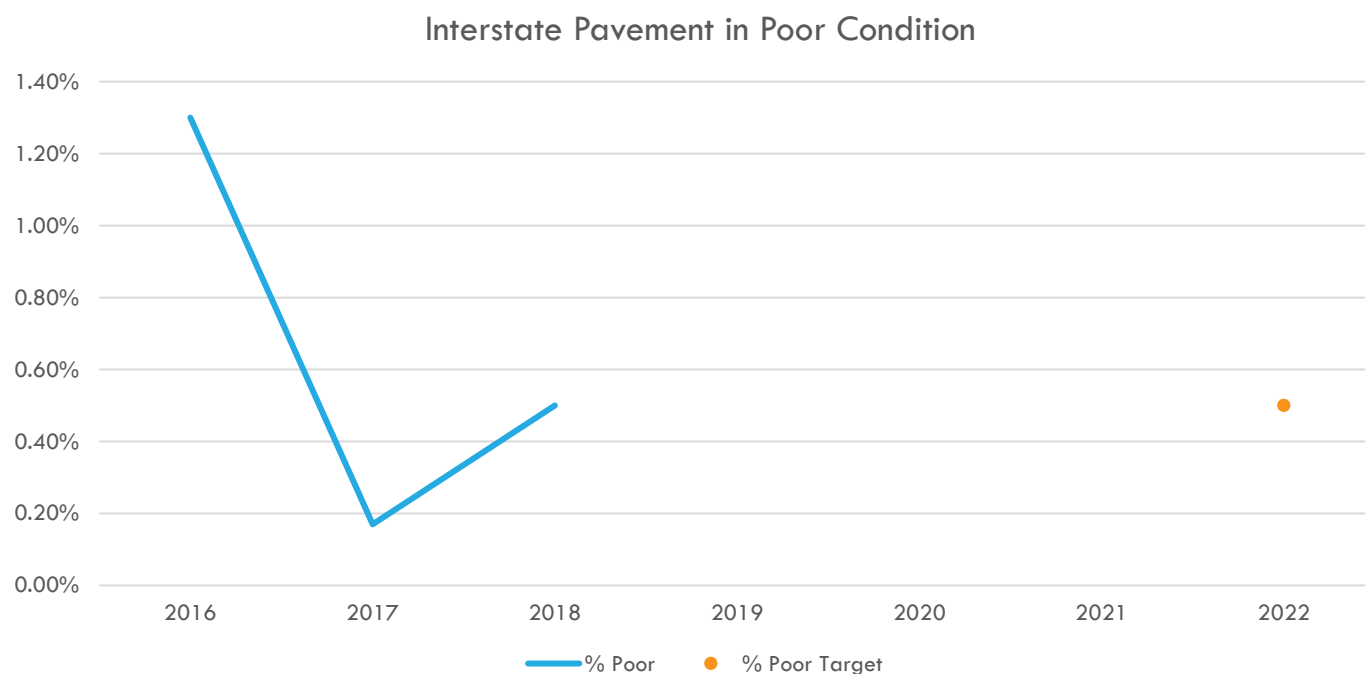


Figure 18: Interstate pavement in poor condition

Year	% Good	% Poor
2016	61.71%	1.30%
2017	59.17%	0.17%
2018	61.20%	0.50%

Table 2: Interstate pavement condition

The percentage of pavement on the non-Interstate NHS in good condition has been declining since 2016, dropping from 66.29% to 55.40% in 2018. However, the percentage of non-Interstate pavement in poor condition has been dropping as well, declining from 3.37% to 1.70%.

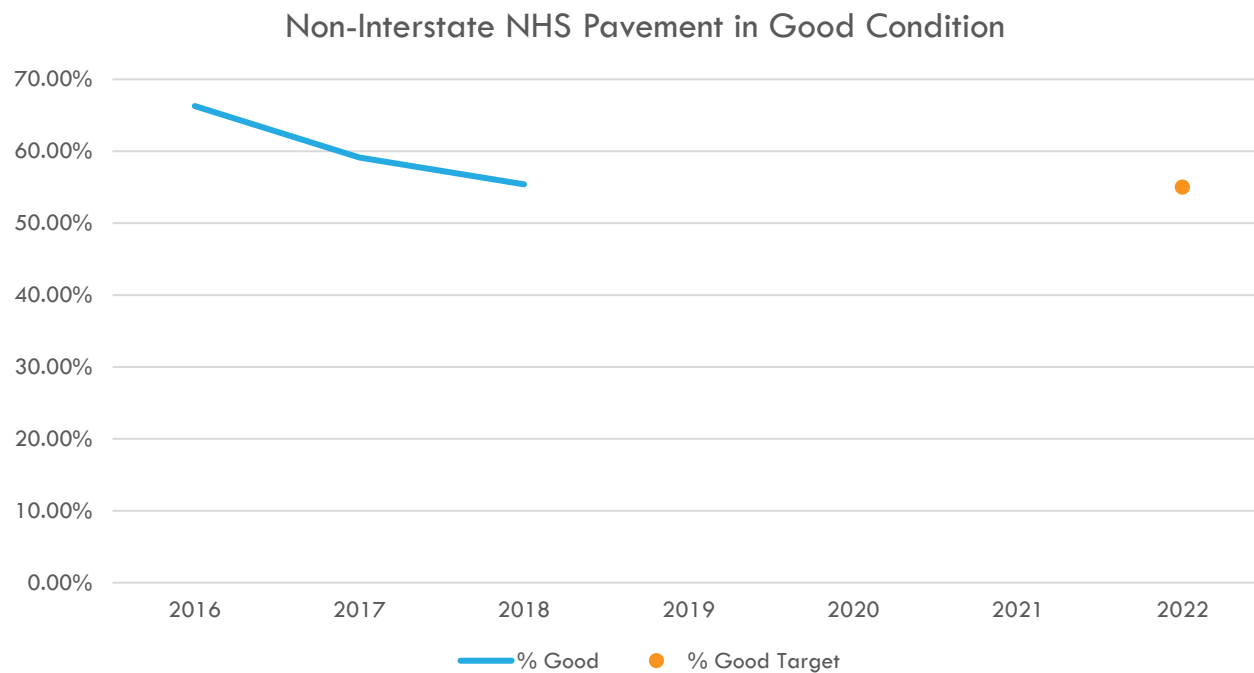


Figure 19: Non-Interstate NHS pavement in good condition

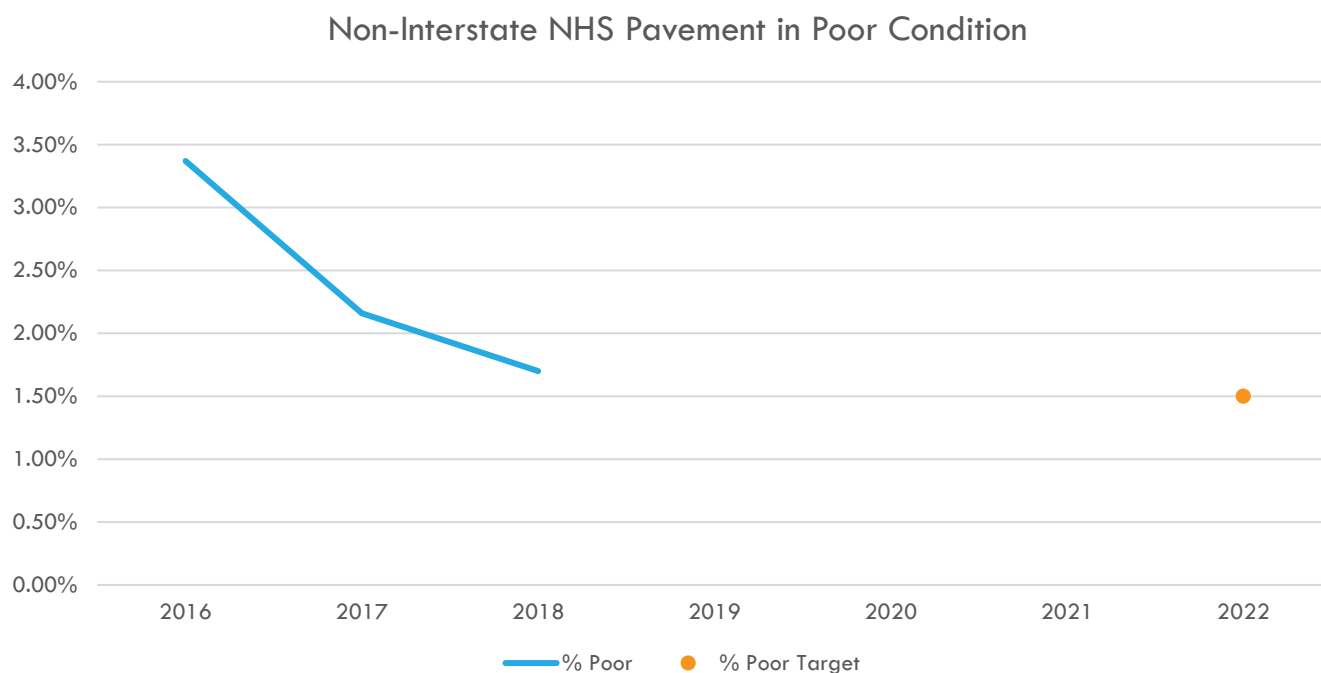


Figure 20: Non-Interstate NHS pavement in Poor Condition

Year	% Good	% Poor
2016	66.29%	3.37%
2017	59.13%	2.16%
2018	55.40%	1.70%

Table 3: Non-Interstate NHS Pavement Condition

WAMPO has set a 2022 target of at least 55% of non-Interstate NHS pavement in good condition no more than 1.5% of non-Interstate NHS pavement in poor condition.

Percentage of NHS Bridges weighted by deck area in Good condition and Percentage of NHS Bridges weighted by deck area in Poor condition

The federal performance measures include two measures related to bridge condition. These performance measures look at the pavement condition on the most important roadways: the National Highway System (NHS). Data on bridge conditions are compiled by the Federal Highway Administration (FHWA) in the National Bridge Inventory (NBI). The NBI also contains information on bridge length and width, allowing the calculation of each bridge's deck area.

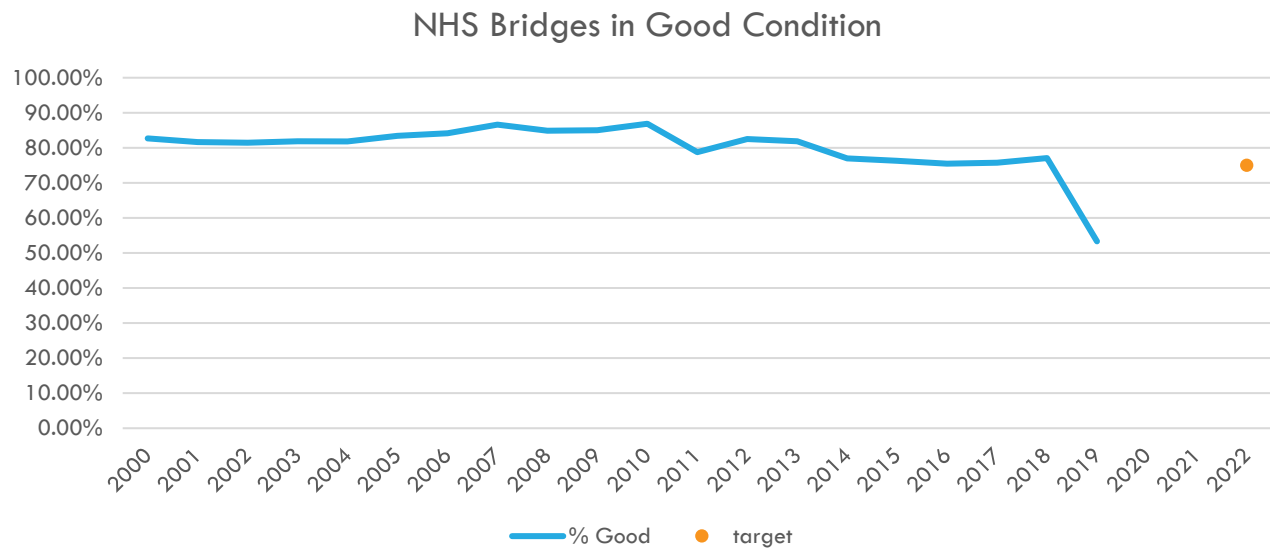


Figure 21: NHS bridges in Good Condition

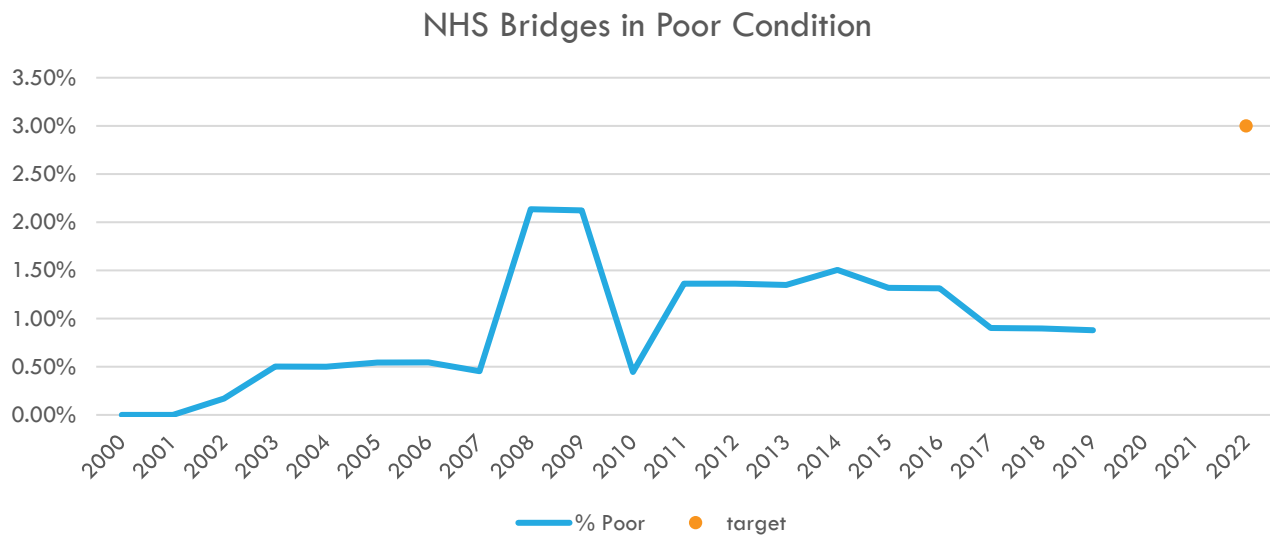


Figure 22: NHS Bridges in Poor Condition

Year	% Good	% Poor
2000	82.67%	0.00%
2001	81.62%	0.00%
2002	81.47%	0.17%
2003	81.87%	0.50%
2004	81.84%	0.50%
2005	83.41%	0.54%
2006	84.17%	0.55%
2007	86.60%	0.45%
2008	84.88%	2.14%
2009	85.01%	2.12%
2010	86.87%	0.45%
2011	78.78%	1.36%
2012	82.53%	1.36%
2013	81.89%	1.35%
2014	76.99%	1.50%
2015	76.30%	1.32%
2016	75.49%	1.31%
2017	75.75%	0.90%
2018	77.07%	0.90%
2019	53.32%	0.88%

Table 4: NHS Bridge Condition

For several years, the percentage of NHS bridges weighted by deck area in Good condition in the WAMPO region has hovered in the mid-70% range. However, in 2019 it dropped from 77.0% to 53.3%. The vast majority of this decrease is attributable to just two bridges: the northbound and southbound I-135 viaducts north of the I-135 and US-54 interchange. These two bridges represent such a large portion of the NHS deck area in the WAMPO region that when they dropped from good condition to fair, the percentage of bridges in good condition decreased by almost 20%.

The percentage of NHS bridges weighted by deck area in poor condition has been under 1% since 2017.

WAMPO's 2022 target for the percentage of NHS bridges in good condition is 75%. The target for the percentage of NHS bridges in poor condition is 3%.

Percentage of bridges weighted by deck area that are not functionally obsolete or in poor condition

In addition to the federal performance measure looking at bridge condition on the NHS, WAMPO has also established a local performance measure looking at all bridges.

As with the federal measure, this measure uses data from the NBI. However, it looks at the percentage of bridges that are not in poor condition or functionally obsolete. Functionally obsolete bridges are those that were built to older standards and may not have adequate lane width, shoulder width, or vertical clearances.

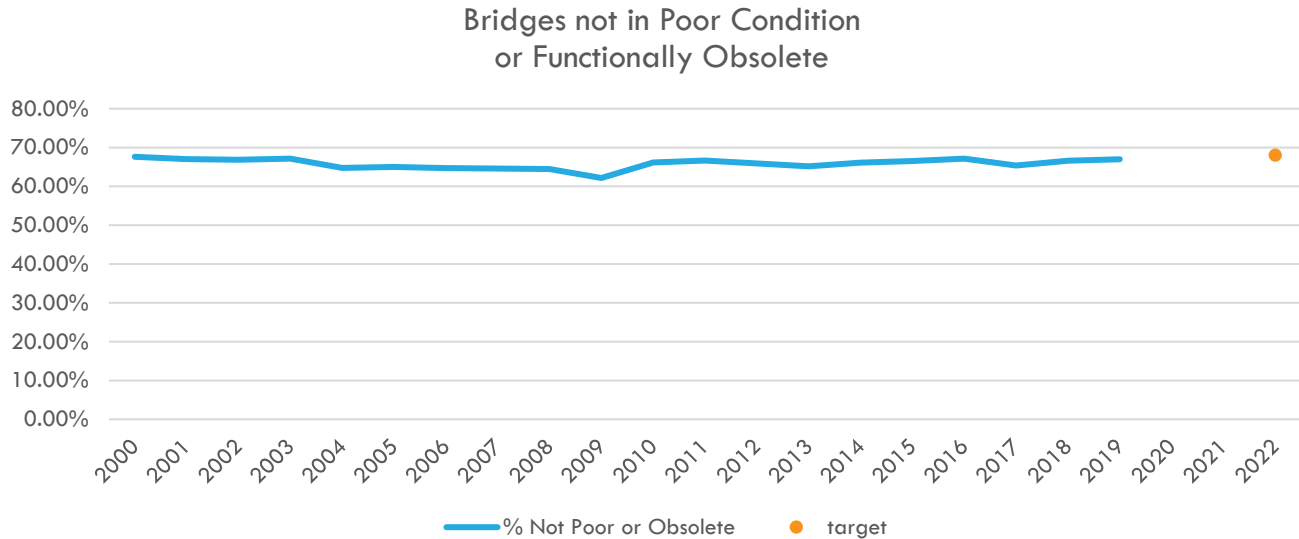


Figure 23: Bridges Not in Poor Condition or Functionally Obsolete

Year	% Not Poor or Obsolete
2000	67.61%
2001	67.02%
2002	66.83%
2003	67.12%
2004	64.76%
2005	65.01%
2006	64.69%
2007	64.60%
2008	64.48%
2009	62.15%
2010	66.15%
2011	66.63%
2012	65.89%
2013	65.15%
2014	66.11%
2015	66.50%
2016	67.15%
2017	65.35%
2018	66.59%
2019	66.97%

Table 5: Bridges Not in Poor Condition or Functionally Obsolete

The percentage of bridges in the region that are not in poor condition or functionally obsolete has hovered around 66% for the past decade. WAMPO's 2022 and 2040 targets for the percentage of bridges weighted by deck area that are not functionally obsolete or in poor condition is 68%.

Local Pavement Condition Performance Measure:

TO BE DEFINED WHEN DATA IS AVAILABLE

Currently, WAMPO does not have consistent pavement condition data for most roads owned and operated by the cities and counties in the region. While most of these jurisdictions do track pavement conditions, they use a multiplicity of different pavement rating systems and storage formats. Compiling this data into a system and format that allows us to assess pavement condition on a regional level is a long-term goal for WAMPO. When this data is available, we intend to define a pavement condition performance measure that addresses all roads in the WAMPO region.

Advance Equity & Acknowledge Diversity

The performance measures for the Advance Equity and Acknowledge Diversity outcome are focused on providing access to opportunities for those without access to an automobile.

- Employment within 1/4 mile of transit, weighted by frequency and hours of service
- Employment within 1/3 mile of the bicycle/pedestrian network



Employment within 1/4 mile of transit, weighted by frequency and hours of service

This measure looks at employment within 1/4 mile of transit routes in the WAMPO region. During the development of the plan, we heard from the public and employers that frequency and hours of service were obstacles to using the transit network, particularly for the commute to work.

If a transit route only runs once per hour, the schedule may not be very convenient for a fixed shift starting time, and missing the bus almost certainly means being late for work. Most transit routes in Wichita run either every 45 or 60 minutes. If a transit route only operates during daytime and early evening hours, then transit will not be an option for getting to and from a 2nd or 3rd shift job. Most transit routes in the region run from 5 am to 7 pm.

This measure takes account of these issues by weighing the percentage of jobs within 1/4 mile of transit based on frequency and hours of service. The hours-of-service weight is the number of hours of weekday operation divided by 24. The frequency weight is the 15 divided by the frequency in minutes. This means that to achieve full coverage, there would have to be a transit route within 1/4 mile of every job providing 15-minute frequencies, 24 hours per day. This level of service is probably unrealistic even in the most transit-dependent cities in the U.S., but it provides a benchmark we can measure against.

In the Wichita region, this produces a score of 6.3 out of 100. While more than half the jobs are within 1/4 mile of a transit route, buses are relatively infrequent, and hours of service are limited.

This is a new performance measure in *REIMAGINED MOVE 2040*, and we have not yet set a target for it.

Employment within 1/3 mile of the bicycle/pedestrian network

To measure how well the bicycle/pedestrian network provides access to jobs, we use the percentage of jobs within 1/3 mile of a bicycle or pedestrian facility. For this measure, bike/ped facilities must be a minimum of a 10-foot multi-use path or dedicated on-street bike lanes. Narrower sidewalks or bike routes shared with vehicular traffic are not included.

While this measure captures the extent of the bike/ped network, it does not fully capture its connectivity (or lack of connectivity, as the case may be). Even if they are near the same number of jobs, several disconnected bike/ped facilities are much less useful than a fully connected network.

37.0% of jobs in the WAMPO region are within 1/3 mile of a bike/ped facility.

This is a new performance measure in *REIMAGINED MOVE 2040*, and we have not yet set a target for it.

Expanding the Economy Through Quality of Place to Attract and Retain Talent

Developing measures of transportation's impacts on quality of place has proven challenging. For the moment, WAMPO will use two measures that examine the coverage of the bike/ped network and the coverage and service provided by the transit network. However, these measures do not capture the full range of what we are trying to achieve in this outcome statement. WAMPO staff will continue to work on new measures to expand our window into this important area.



- Percentage of the population within 1/4 mile of a transit route, weighted by frequency and hours of service
- Percentage of the population within 1/3 mile of a facility on the bike/ped network

Population within 1/4 mile of transit, weighted by frequency and hours of service

This measure examines the coverage provided by the transit network, weighted based on how often, and how long that service is provided. It is similar to the employment-based transit measure described under the Equity & Diversity outcome, but it looks at where people live, rather than where they work.

This measure starts with the percentage of the population within 1/4 mile of transit and weights it based on frequency and hours of service. The hours-of-service weight is the number of hours of weekday operation divided by 24. The frequency weight is the 15 divided by the frequency in minutes. This means that to achieve full coverage, there would have to be a transit route within 1/4 mile of every residence providing 15-minute

frequencies, 24 hours per day. This level of service is probably unrealistic even in the most transit-dependent cities in the U.S., but it provides a benchmark we can measure against.

In the Wichita region, this produces a score of 6.4 out of 100. While more than half the population lives within 1/4 mile of a transit route, buses are relatively infrequent, and hours of service are limited.

This is a new performance measure in *REIMAGINED MOVE 2040*, and we have not yet set a target for it.

Population within 1/3 mile of the bicycle/pedestrian network

To measure how well the bicycle/pedestrian network provides access to the population, we use the percentage of residents within 1/3 mile of a bicycle or pedestrian facility. It is quite similar to the employment-based bike/ped measure described under the Equity & Diversity outcome, but it looks at where people live, rather than where they work. For this measure, bike/ped facilities must be a minimum of a 10-foot multi-use path or dedicated on-street bike lanes. Narrower sidewalks or bike routes shared with vehicular traffic are not included.

While this measure captures the extent of the bike/ped network, it does not fully capture its connectivity (or lack of connectivity, as the case may be). Even if they are near the same number of jobs, several disconnected bike/ped facilities are much less useful than a fully connected network.

32.9% of people in the WAMPO region live are within 1/3 mile of a bike/ped facility.

This is a new performance measure in *REIMAGINED MOVE 2040*, and we have not yet set a target for it.

Integrated Multimodal Transportation Network

The performance measures for the integrated multimodal transportation network outcome are intended to capture the extent and condition of the non-auto modes.

- Percentage of the population within 1/4 mile of a transit route, weighted by frequency and hours of service
- Percentage of the population within 1/3 mile of a facility on the bike/ped network
- Percentage of revenue vehicles that exceed the useful life benchmark*
- Percentage of non-revenue service vehicles that exceed the useful life benchmark*
- Percentage of facilities that are rated less than 3.0 on the TERM scale*

*Federally mandated performance measure



Population within 1/4 mile of transit, weighted by frequency and hours of service

This measure is identical to the "Population within 1/4 mile of transit, weighted by frequency and hours of service" described under Expanding the Economy Through Quality of Place to Attract and Retain Talent. See above for details.

Population within 1/3 mile of the bicycle/pedestrian network

This measure is identical to the "Population within 1/3 mile of the bicycle/pedestrian network" described under Expanding the Economy Through Quality of Place to Attract and Retain Talent. See above for details.

Percentage of revenue vehicles that exceed the useful life benchmark

The federal Transit Asset Management (TAM) performance measure for revenue vehicles (those in service carrying passengers) is tracked, and targets are set based on the vehicle class. Examples of vehicle classes would include a full-size bus or cutaway van. For each class, the agency must define a Useful Life Benchmark (ULB), in years. The target is the percentage of vehicles beyond their ULB.

KDOT operates a group TAM plan for transit and paratransit operators from across the state that includes targets for these measures. Wichita Transit opted not to participate in the group plan and instead set its own targets. KDOT and Wichita Transit have defined their vehicle classes differently, chosen different useful life benchmarks, and set different targets. WAMPO has decided to support the KDOT and Wichita Transit targets, rather than setting our own targets.

KDOT Targets

Class	Useful Life Benchmark	% of Fleet Beyond ULB
Over-the-road Bus	14 years	25%
Full-size Bus	14 years	25%
Cutaway Bus	10 years	25%
Van	8 years	25%
Minivan	8 years	25%

Table 6: KDOT Percentage of Revenue Vehicles that Exceed the Useful Life Benchmark

Wichita Transit Targets

Class	Useful Life Benchmark	% of Fleet Beyond ULB
Full-size Bus	14 years	17%
Buses (Rubber Tier Trolley)	10 years	100%
Light Duty Cutaway Van	6 years	17%

Table 7: WT Percentage of Revenue Vehicles that Exceed the Useful Life Benchmark

Percentage of non-revenue service vehicles that exceed the useful life benchmark

The federal Transit Asset Management (TAM) performance measure for non-revenue vehicles (those in support roles, not carrying passengers) are tracked, and targets are set based on the class of vehicle. Examples of vehicle classes would include a minivan or SUV. For each class, the agency must define a Useful Life Benchmark (ULB), in years. The target is the percentage of vehicles beyond their ULB.

KDOT operates a group TAM plan for transit and paratransit operators from across the state that includes targets for these measures. Wichita Transit opted not to participate in the group plan and instead set its own targets. KDOT and Wichita Transit have defined their vehicle classes differently, chosen different useful life benchmarks, and set different targets. WAMPO has decided to support the KDOT and Wichita Transit targets, rather than setting our own targets.

KDOT Targets

Class	Useful Life Benchmark	% of Fleet Beyond ULB
Van	8 years	25%
Minivan	8 years	25%
SUV	8 years	25%
Automobile	8 years	25%

Table 8: KDOT Percentage of Non-Revenue Service Vehicles that Exceed the Useful Life Benchmark

Wichita Transit Targets

Class	Useful Life Benchmark	% of Fleet Beyond ULB
Light Duty Cutaway Van	6 years	100%
Support Vehicles	8 years	50%

Table 9: WT Percentage of Non-Revenue Service Vehicles that Exceed the Useful Life Benchmark

Percentage of facilities that are rated less than 3.0 on the TERM scale

The federal Transit Asset Management (TAM) performance measure for fixed facilities is tracked based on the class of facility. Examples of facilities would include garages or administrative facilities. The condition of each facility is rated using a standardized system, the TERM scale. The performance measure is the percentage of facilities that rate below 3.0 on this scale.

KDOT operates a group TAM plan for transit and paratransit operators from across the state that includes targets for these measures. Wichita Transit opted not to participate in the group plan and instead set its own targets. KDOT and Wichita Transit have defined their facility classes differently, chosen different useful life benchmarks, and set different targets. WAMPO has decided to support the KDOT and Wichita Transit targets, rather than setting our own targets. Note that at this time, the only transit agency in the WAMPO region with fixed facilities is Wichita Transit.

KDOT Targets

Class	% of Facilities below 3.0 on the TERM scale
Administrative	25%
Maintenance	25%
Parking	25%
Passenger	25%

Table 10: KDOT Percentage of Facilities Rated Less than 3.0 On The TERM Scale

Wichita Transit Targets

Class	% of Facilities below 3.0 on the TERM scale
Administrative/Maintenance	0%
Passenger/Parking	0%

Table 11: WT Percentage Of Facilities Rated Less than 3.0 On The TERM Scale