Status of Initial Target Setting

- June 2018 – VISION 2050 Amendment (Completed)
  - FHWA Highway Safety
- June 2019 – VISION 2050 Amendment (Current Effort)
  - FTA Transit Asset Management (TAM)
  - FHWA NHS Pavement/Bridge Condition and Performance
  - FHWA Interstate Freight Performance
  - FHWA Congestion Mitigation and Air Quality Improvement (CMAQ)
- Early 2021:
  - FTA Transit Safety
TAM, NHS, Freight, and CMAQ PM Target Setting

- **FTA TAM Targets (1-Year)**
  - MCTS established targets in December 2016
  - Commission established initial targets in Jan 2017 for Metropolitan Planning Area (MPA)

- **FHWA NHS, Freight, and CMAQ Targets (2- to 4-years)**
  - WisDOT established targets in May 2018
  - Commission established initial targets for MPA in November 2018
  - WisDOT and Commission jointly established two congestion-related CMAQ targets for Milwaukee urbanized area

- Commission can initially set targets and subsequently revise
Incorporating Targets into VISION 2050

- Initial targets were reviewed and potentially revised
- Looked to extend targets to year 2050 and expand to cover Region
  - Set short-term targets for MPA based on long-range targets
- Developed preliminary targets for review by Advisory Committees
  - Reviewed WisDOT target methodologies
  - Reviewed historical trends
  - Reviewed VISION 2050 and other plans
- Preliminary targets to be reviewed and commented on by public (April 2019)
- Amend final targets into VISION 2050 (May/June 2019)
- Following amendment, review targets every 4 years as part of interim plan update and every 10 years as part of major plan update
National Performance Measures Included in Amendment

- FTA TAM
- NHS Pavement/Bridges
- NHS/Freight Reliability
- CMAQ
TAM Measures

- Percent of Revenue Vehicles that are either at or beyond their useful life benchmarks (ULB)

- Percent of (non-revenue) vehicles and equipment that are at or beyond their ULB

- Percent of facilities exceeding their Transit Economic Requirements Model (TERM) scale

- Percent of segments that have performance restrictions
Year 2017 inventory data is currently available for revenue vehicles through NTD.
- Data for other performance measures available starting with year 2018

Historical revenue vehicle data shows a slight improvement of existing condition

Basing regional targets on MCTS would result in a slight worsening of conditions by the year 2050

VISION 2050:
- Recommends significant improvement to transit systems, including keeping transit assets in a state of good repair
- Recognizes that, without additional Federal and State funding, transit service will decline

For preliminary targets, Commission staff proposes:
- Year 2050 target based on MCTS short-term target
- TAM targets for years 2018 and beyond be based on year 2050 targets
<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Asset Examples</th>
<th>Performance Measure</th>
<th>Proposed Year 2050 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rolling Stock</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buses, Other Passenger Vehicles, and Railcars</td>
<td>Bus, Cutaway, Van, Minivan, and Streetcars</td>
<td>Percent of revenue vehicles that have either met or exceeded their useful life benchmark</td>
<td>&lt; 30</td>
</tr>
<tr>
<td>Equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-revenue service vehicles and equipment over $50,000</td>
<td>Route Supervisor Vehicles, Maintenance Trucks, Pool Vehicles, DPF Cleaning System, Bus Wash Systems, Fare Collection systems, Vehicle Lifts</td>
<td>Percent of vehicles and equipment that have either met or exceeded their useful life benchmark</td>
<td>&lt; 30</td>
</tr>
<tr>
<td>Facilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support</td>
<td>Maintenance and Administrative Facilities</td>
<td>Percent of facilities within an asset class, rated below 3 on condition reporting system</td>
<td>&lt; 15</td>
</tr>
<tr>
<td>Passenger</td>
<td>Rail Terminals, Bus Transfer Stations</td>
<td>Percent of facilities within an asset class, rated below 3 on condition reporting system</td>
<td>0</td>
</tr>
<tr>
<td>Parking</td>
<td>Park-and-Ride Lots with Direct Capital Responsibility</td>
<td>Percent of facilities within an asset class, rated below 3 on condition reporting system</td>
<td>0</td>
</tr>
<tr>
<td>Infrastructure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed Guideway</td>
<td>Track Segments, Exclusive Bus Rights-of-Way, Catenary Segments, and Bridges</td>
<td>Percent of segments that have performance restrictions</td>
<td>0</td>
</tr>
</tbody>
</table>

- Year 2017 regional baseline data for rolling stock is 21.6 percent
# NHS Pavement/Bridges Measures

## Pavement Performance Measures

<table>
<thead>
<tr>
<th></th>
<th>Interstate Highways</th>
<th>Non-Interstate NHS Highways</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of lane-miles of pavement in “good” condition</td>
<td>% of lane-miles of pavement in “good” condition</td>
<td>% of lane-miles of pavement in “good” condition</td>
</tr>
<tr>
<td>% of lane-miles of pavement in “poor” condition</td>
<td>% of lane-miles of pavement in “poor” condition</td>
<td>% of lane-miles of pavement in “poor” condition</td>
</tr>
</tbody>
</table>

## Bridge Performance Measures

<table>
<thead>
<tr>
<th></th>
<th>All NHS Highways</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of total bridge deck area in “good” condition</td>
<td>% of total bridge deck area in “good” condition</td>
</tr>
<tr>
<td>% of total bridge deck area in “poor” condition</td>
<td>% of total bridge deck area in “poor” condition</td>
</tr>
</tbody>
</table>
NHS Pavement Measure

- Thresholds for Good, Fair, and Poor established for the following criteria:
  - International Roughness Index (all pavement types)
  - Percent Cracking (all pavement types)
  - Rutting (asphalt only)
  - Faulting (jointed concrete only)

- Condition performance for each segment determined by:
  - Asphalt/Jointed Concrete (IRI, cracking, rutting/faulting):
    - Good: All three criteria Good
    - Poor: Two or more criteria Poor
  - Continuous Concrete (IRI and cracking)
    - Good: Both criteria Good
    - Poor: Both criteria Poor
NHS Bridge Measure

- Condition is based on the rating for the following items in the National Bridge Inventory:
  - Deck
  - Superstructure
  - Substructure
  - Culvert

- Thresholds established for each of the above criteria:
  - Good (≥7)
  - Fair (5 or 6)
  - Poor (≤4)

- Overall rating of bridge is the lowest of the four ratings for the above items.
Historical pavement and bridge data shows a maintaining of existing conditions (pavement) or an improvement (bridges).

Basing regional targets on the State’s methodology would result in a worsening of conditions by the year 2050.

VISION 2050 recommends pavement/bridge conditions be maintained or improved.

For preliminary targets, Commission staff propose a 10 percent improvement by the year 2050 for all performance measures.

Figure 4
Condition of State Trunk Highway Based on International Roughness Index: 2006-2016

Figure 6
Condition of Bridges Based on Sufficiency Rating on the State Trunk Highway Network: 2006-2017
### Preliminary NHS Condition Targets

#### Preliminary Year 2050 Targets

<table>
<thead>
<tr>
<th>Performance Measure Areas</th>
<th>Performance Measures</th>
<th>2017 Baseline Data</th>
<th>Preliminary Year 2050 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition of Interstate Pavement</td>
<td>Percentage in Good Condition</td>
<td>59.0</td>
<td>≥64.9</td>
</tr>
<tr>
<td></td>
<td>Percentage in Poor Condition</td>
<td>4.6</td>
<td>≤4.1</td>
</tr>
<tr>
<td>Condition of Non-Interstate NHS</td>
<td>Percentage in Good Condition</td>
<td>18.9</td>
<td>≥20.8</td>
</tr>
<tr>
<td></td>
<td>Percentage in Poor condition</td>
<td>6.6</td>
<td>≤5.9</td>
</tr>
<tr>
<td>Condition of NHS Bridges (including interstate bridges)</td>
<td>Percentage in Good Condition</td>
<td>58.0</td>
<td>≥63.8</td>
</tr>
<tr>
<td></td>
<td>Percentage in Poor Condition</td>
<td>1.3</td>
<td>≤1.2</td>
</tr>
</tbody>
</table>

#### Resulting Short-Term Targets

<table>
<thead>
<tr>
<th>Performance Measure Areas</th>
<th>Performance Measures</th>
<th>Metropolitan Planning Area</th>
<th>Seven-County Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2017 Baseline Data</td>
<td>Year 2021 Target</td>
</tr>
<tr>
<td>Condition of Interstate Pavement</td>
<td>Percentage in Good Condition</td>
<td>61.1</td>
<td>≥61.8</td>
</tr>
<tr>
<td></td>
<td>Percentage in Poor Condition</td>
<td>4.4</td>
<td>≤4.3</td>
</tr>
<tr>
<td>Condition of Non-Interstate NHS</td>
<td>Percentage in Good Condition</td>
<td>17.6</td>
<td>≥17.8</td>
</tr>
<tr>
<td></td>
<td>Percentage in Poor condition</td>
<td>6.8</td>
<td>≤6.7</td>
</tr>
<tr>
<td>Condition of NHS Bridges (including interstate bridges)</td>
<td>Percentage in Good Condition</td>
<td>58.2</td>
<td>≥58.9</td>
</tr>
<tr>
<td></td>
<td>Percentage in Poor Condition</td>
<td>1.3</td>
<td>≤1.3</td>
</tr>
</tbody>
</table>
Two NHS reliability measures

- Percent of person-miles traveled on Reliable Segments of Interstate
- Percent of person-miles traveled on Reliable Segments of Non-Interstate NHS

Calculation:

- Vehicle travel times for each 15-minute time period over a year
- 4 periods: weekday AM, Mid-day, and PM, and weekend day-time
  
  \[
  \text{Reliability} = \frac{\text{80th Percentile Travel Time}}{\text{50th Percentile Travel Time}}
  \]

- Segment is considered Reliable if ratio is less than 1.5 for all of the four time periods.
- Performance Measure is calculated by dividing the cumulative person-miles of Reliable segments by the cumulative person-miles of total segments having travel time data
Freight Reliability Measure

- **Freight Reliability Index**
  - Truck travel times on Interstate for each 15-minute time period over a year
  - 5 periods: weekday AM, mid-day, and PM, weekend day-time, and overnight (all week)

- Truck Travel Time Reliability = \( \frac{95\text{th Percentile Travel Time}}{50\text{th Percentile Travel Time}} \)

- The maximum truck travel time reliability is identified amongst the 5 periods for each of the Interstate segments

- Performance measure is the weighted average of the maximum truck travel time reliabilities
Historical data for NHS and freight reliability is limited (3 to 6 years)
  - Improvement in 2016 and 2017 for Interstate and freight reliability (likely due to Zoo Interchange Core construction)
  - Both returned in 2018 to pre-construction levels

VISION 2050 includes a number of recommendations that would improve system reliability: expansion of transit and bike/ped, TDM, TSM, and arterial capacity improvement

Basing targets on WisDOT methodology would result in a worsening in NHS/freight reliability by the year 2050

For preliminary targets, Commission staff proposes a 5 percent improvement to the 3- or 6-year average by the year 2050
### Preliminary NHS/Freight Performance Targets

<table>
<thead>
<tr>
<th>Performance Measures</th>
<th>2017 Baseline Data</th>
<th>Preliminary Year 2050 Targets</th>
<th>Resulting Year 2021 Targets*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of Person-Miles Traveled on Reliable Interstate Segments</td>
<td>83.9</td>
<td>≥85.5</td>
<td>≥81.9</td>
</tr>
<tr>
<td>Percentage of the Person-Miles Traveled on Reliable Non-Interstate NHS Segments</td>
<td>90.9</td>
<td>≥95.2</td>
<td>≥91.2</td>
</tr>
<tr>
<td>Freight Reliability Index</td>
<td>1.49</td>
<td>≤1.64</td>
<td>≤1.72</td>
</tr>
</tbody>
</table>

* MPA and Region targets proposed to be the same.
CMAQ Performance Measures

- Two Congestion-Related Measures (for Milwaukee urbanized area)
  - Peak Hour Excessive Delay (PHED) per Hour
  - Percentage of Non-Single Occupancy Vehicles (Non-SOV)

- Three Emission Reductions-Related Measures (for MPA)
  - Daily Reduction of Volatile Organic Compounds (VOC)
  - Daily Reduction of Nitric Oxide (NOx)
  - Daily Reduction of Particulate Matter (PM2.5)
Congestion-Related Measures

- Only for the Milwaukee urbanized area
- WisDOT and Commission have same target
- Peak Hour Excessive Delay per Capita
  - Cumulative excessive delay on system over a year
  - Data intensive (travel time data, hourly volumes, vehicle class, vehicle occupancy)
  - Utilizes travel time data during weekday peak periods
- Percent Non-SOV Travel
  - Based on U.S. Census American Community Survey (ACS) Data
WisDOT, Commission, and TOPS Lab staffs worked jointly to develop baseline data and targets.

Commission’s travel demand model was utilized to develop targets.

VISION 2050 includes recommendations that address delay and promote alternatives to SOV travel - expansion of transit and bike/ped, TDM, TSM (delay only), and arterial capacity improvement (delay only).

In establishing year 2050 targets, it is proposed that the same methodology be utilized.
## Preliminary Congestion-Related CMAQ Targets

<table>
<thead>
<tr>
<th>Performance Measures</th>
<th>2017 Baseline Data</th>
<th>Year 2019 Targets*</th>
<th>Year 2021 Targets*</th>
<th>Preliminary Year 2050 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Hour Excessive Delay (PHED) Per Capita</td>
<td>8.96</td>
<td>N/A</td>
<td>≤8.60</td>
<td>≤7.84</td>
</tr>
<tr>
<td>Percentage of Non-Single Occupancy Vehicles</td>
<td>20.3</td>
<td>≥20.2</td>
<td>≥20.1</td>
<td>≥21.2</td>
</tr>
</tbody>
</table>

* WisDOT and Commission staffs jointly established the years 2019 and 2021 targets, per the regulations.
Emission Reductions-Related Measures

- **Performance Measure Calculation**
  - Expected emission reductions from implementation of approved CMAQ-funded projects.
  - Targets represent cumulative reduction over 2- and 4-year periods.

- **Target Development**
  - WisDOT based first 2 years on estimated emission reduction from programmed CMAQ projects and used a projection based on historical reductions for remaining 2 years.
  - VISION 2050 includes recommendations that reduce overall emission levels - expansion of transit and bike/ped, TDM, and TSM.
  - For targets setting:
    - Given the project nature of the measure, only short-term targets established
    - Base short-term targets on WisDOT target setting methodology
## Preliminary Emission Reductions-Related CMAQ Targets

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Reduction of VOC (kilograms)</td>
<td>41.268</td>
<td>≥10.860</td>
<td>≥27.032</td>
</tr>
<tr>
<td>Daily Reduction of NO$_2$ (kilograms)</td>
<td>109.545</td>
<td>≥83.316</td>
<td>≥137.350</td>
</tr>
<tr>
<td>Daily Reduction of PM$_{2.5}$ (kilograms)</td>
<td>3.291</td>
<td>≥7.797</td>
<td>≥12.096</td>
</tr>
</tbody>
</table>
Next Steps

- Public review and comment (April 2019)
- Final Advisory Committees review and approval (May 2019)
- Commission review and approval (June 2019)