MPOJC

Metropolitan Planning Organization of Johnson County

MPOJC Transportation Technical Advisory Committee
Tuesday November 10, 2020 – 10:30 a.m.
Electronic Meeting Notice
Zoom Meeting Platform

**Electronic Meeting**
*(Pursuant to Iowa Code section 21.8)*

An electronic meeting is being held because a meeting in person is impossible or impractical due to concerns for the health and safety of Commission members, staff and the public presented by COVID-19.

You can participate in the meeting and can comment on an agenda item by going to:

https://zoom.us/meeting/register/tJEudOqsrz0tHdyW5HYzYql8gPOAxogXmNxt

via the internet to visit the Zoom meeting's registration page and submit the required information.

Once approved, you will receive an email message with a link to join the meeting. If you are asked for a meeting or webinar ID, enter the ID number found in the email. A meeting password may also be included in the email. Enter the password when prompted.

If you have no computer or smartphone, or a computer without a microphone, you may call in by telephone by dialing (312) 626-6799. When prompted, enter the meeting or webinar ID. The ID number for this meeting is: 953 3341 6778

Once connected, you may dial *9 to "raise your hand," letting the meeting host know you would like to speak. Providing comments in person is not an option.

Metropolitan Planning Organization of Johnson County

# AGENDA

1. Call to order; recognize alternates; consider approval of meeting minutes

2. Public discussion of any item not on the agenda*

3. Consider a recommendation to the MPOJC Urbanized Area Policy Board regarding an amendment to the adopted FY2021-2024 MPOJC Transportation Improvement Program (TIP)

4. Consider a recommendation to the MPOJC Urbanized Area Policy Board regarding Surface Transportation Block Grant (STBG) and Transportation Alternative Program (TAP) scoring criteria for funds allocated by MPOJC

5. Discussion regarding potential Federal Functional Classification changes for MPOJC Urbanized Area roadways

6. Consider a recommendation to the MPOJC Urbanized Area Policy Board regarding elements of the MPOJC Long Range Transportation Plan revision
    a. Vision
    b. Guiding Principals
    c. Scoring Criteria

7. Discussion regarding the pending 'Needs Assessment' required for the MPOJC Long Range Transportation Plan revision

8. Consider a recommendation to the MPOJC Urbanized Area Policy Board regarding safety target setting and performance measures for the MPO as required by the Federal Highway Administration

9. Update on the Metro Trail Count Program

10. Other Business

11. Adjournment

*To request any disability-related accommodations or language interpretation, please contact MPOJC staff at 356-5230 or kent-ralston@iowa-city.org 48 hours prior to the meeting.*

MINUTES **DRAFT**
MPOJC TRANSPORTATION TECHNICAL ADVISORY COMMITTEE
WEDNESDAY, SEPTEMBER 15, 2020 – 10:30 AM
CITY OF IOWA CITY – ZOOM MEETING PLATFORM

| | | |
|---|---|---|
| **MEMBERS PRESENT:** | Coralville: | Dan Holderness, Vicky Robrock |
| | Iowa City: | Jason Havel, Ron Knoche, Darian Nagle-Gamm, Mark Rummel, Scott Sovers |
| | Johnson County: | Tom Brase |
| | North Liberty: | Ryan Rusnak |
| | Tiffin: | Doug Boldt |
| | University Heights: | Louise From |
| | University of Iowa: | Brian McClatchey |
| | RTBC: | None |
| | Iowa DOT: | Catherine Cutler |
| | ECICOG: | Brock Grenis |
| | Other: | Aaron Grenquist, Anthony Klaumann |
| **STAFF PRESENT**: | Kent Ralston, Emily Bothell, Brad Neumann, Sarah Walz, Frank Waisath | |

1. CALL TO ORDER; RECOGNIZE ALTERNATES; CONSIDER APPROVAL OF MEETING MINUTES

Neumann called the meeting to order at 10:30 AM. The meeting was held online through the Zoom meeting platform in accordance with Iowa Code Section 21.8 due to complications preventing in-person meetings during the COVID-19 pandemic. Neumann indicated that votes would be cast verbally, per the voting system for in-person meetings.

There were no alternates.

Holderness moved to approve the minutes from the May meeting. McClatchey seconded the motion. **The motion carried unanimously.**

2. PUBLIC DISCUSSION OF ANY ITEM NOT ON THE AGENDA

None.

3. CONSIDER A RECOMMENDATION TO THE URBANIZED AREA POLICY BOARD REGARDING AN AMENDMENT TO THE ADOPTED FY2021-2024 MPOJC TRANSPORTATION IMPROVEMENT PROGRAM (TIP) - MODIFYING PROGRAMMING OF INTERSTATE 80/380 INTERCHANGE CONSTRUCTION FUNDS

The *Transportation Improvement Program* (TIP) is the programming document for all surface transportation projects that receive state or federal funds. This includes street and highway, transit, rail, bicycle, and pedestrian projects in the Iowa City urbanized area. Neumann detailed the Iowa DOT's request to increase the project funding amount for the I-80/I-380 interchange project. This change is due to the Iowa DOT delaying a project letting from summer (FFY2020) to winter (FFY2021). The current project funding amount for the I-80/I-380 interchange project is: (FFY2021: $137,755,000 Total), (FFY2021: $110,204,000 Federal Aid). The new project funding

amount is (FFY2021: $207,565,000 Total), (FFY2021: $176,430,250 Federal Aid). The MPOJC is required to consider this amendment due to the project being located within the urbanized area.

Holderness moved to approve. Nagle-Gamm seconded the motion. **The motion passed unanimously.**

4. DISCUSSION REGARDING SURFACE TRANSPORTATION BLOCK A GRANT (STBG) AND TRANSPORTATION ALTERNATIVE PROGRAM (TAP) SCORING CRITERIA FOR FUNDS ALLOCATED BY MPOJC

Bothell reported that grant applications for Surface Transportation Block Grant (STBG) and Transportation Alternative Program (TAP) funding will be available early next year. Prior to that staff wanted the committee to review the scoring criteria. Bothell explained that the current criteria had been revised and approved in November 2018.

Nagle-Gamm proposed using the term 'sustainability' as opposed to 'environment', which would add further clarification.

Staff agreed that this is something we could consider and would review the suggestion. Staff will bring a final draft to the TTAC in November for approval and recommendation to the Urbanized Area Policy Board.

5. DISCUSSION REGARDING POTENTIAL FEDERAL FUNCTIONAL CLASSIFICATION CHANGE FOR MPOJC URBANIZED AREA ROADWAYS

Bothell explained that the Surface Transportation Block Grant (STBG) and Transportation Alternative Program (TAP) funding can only be spent on roadways that are classified as collector or higher on the Federal Functional Classification (FFC) system. This system classes roadways into five hierarchical categories, while also identifying which roads are Federal Aid Routes. The classes, from highest to lowest, are interstates, principal arterials, minor arterials, collectors, and local streets. Those with higher classifications provide better mobility and less access to individual properties. Those with lower classifications provide less mobility and more access to individual properties.

Staff requested the committee review the current FFC map, and identify roadways the committee would either like added or those that can be revised by mid-October.

Roadways that either do not exhibit a high-level of connectivity based on the FFC system, or new roadways that have not been programmed into a community's Capital Improvement Program will not be approved by the Iowa DOT. Furthermore, only 35% of the total road mileage within the urban area can be included in the FFC. (13.52 miles currently available)

Ralston further expressed the need to receive recommendations by mid-October, as the pre-approval process is intensive.

6. UPDATE AND INITIAL DISCUSSION ON THE MPOJC LONG RANGE TRANSPORTATION PLAN REVISION PROCESS

Bothell described the MPO's Long Range Transportation Planning revision process, which is the combination of several years of planning that engages residents, municipal staff, and elected officials to create a framework of the future transportation network. The Plan utilizes the previous

plan's vision, performance measures, and guiding principles with some minor corrections to ensure cooperation, comprehension, and continuity.

a) Vision

*"To ensure the strategic use of public investments and policies for the creation of a safe, efficient, and equitable transportation network that enhances economic opportunity and growth while preserving our environment and quality of life."*

b) Guiding Principles

The Guiding principles include: Economic Opportunity, Environment, Quality of Life, System Preservation, Choice, Safety, Efficiency, Health and Equity.

Staff will be asking the committee to approve the guiding principles at the November meeting. These principles serve as a foundation for the goals that will be elaborated on in the Long-Range Transportation Plan.

c) Performance Measures

Bothell indicated that there are new requirements for long-range plans to contain performance measures, which has been enforced by the FAST Act (Fixing America's Surface Transportation). These changes will be reflected in the Long-Range Transportation Plan.

d) Travel Demand Model Video

Bothell further explained that the Long-Range Transportation Plan will also contain an update of the MPOJC Travel Demand Model. This model works to show how vehicular traffic patterns shift in response to land-use changes. MPO staff will be asking MPOJC entities for assistance in creating a picture of growth for the urbanized area that will extend to 2050.

Bothell then presented a short video that condensed the details and reasoning behind Travel Demand Models and how they are used to prioritize areas of need in communities.

Nagle-Gamm inquired as to what modes of transportation are being analyzed in the Traffic Demand Model, and Bothell clarified that vehicular demand was the only mode of transportation that will be analyzed for the Long-Range Transportation Plan.

7. DISCUSSION REGARDING DATA COLLECTION AND EXTRAPOLATION FOR LOCAL TRAFFIC STUDIES TO BE COMPLETED BY MPOJC

Bothell explained that despite the traffic pattern changes that have been impacted due to Covid-19, recent data suggests that traffic is beginning to normalize. In Iowa, the DOT reported the most significant decrease in traffic to be in mid-April, however since July traffic has increased to reflect 2019 levels.

Due to this normalization, Bothell explained the MPO is hoping to start peak hour and ADT counts this fall in order to complete the studies listed in the MPO's Work Program. Bothell described the plan to collect August-December traffic count data, which will then be compared to a 5-year average of data in order to verify that traffic patterns are returning to their previous levels. If the

data is shown to be reliable, staff would then apply the percent change in data to continue drafting studies. Staff is asking for committee guidance/input prior to continuing.

Ralston reminded the committee that traffic studies had been halted due to Covid-19, and pointed out that deadlines were approaching. Ralston also indicated that though staff is eager to continue with traffic counts, city engineer input is necessary.

8. UPDATE ON THE FINAL CRANDIC PASSENGER RAIL STUDY

Neumann explained that Phase III of the CRANDIC Passenger Rail Study has been completed. This phase focused on ridership, financial strategies, benefits to the community, and conceptual station design. It was presented to stakeholders on July 17, 2020. There were several highlights of the study, including the ridership forecast, which predicted 1.4 million passengers per year, increasing to 1.79 million passengers per year by 2027. For reference, the Eastern Iowa Airport served 1.3 million passengers in 2019, and Iowa City Transit served 1.4 million passengers in the same year.

Neumann described the financial needs, including $55 million in capital costs, which includes building a new maintenance facility, and $4.8 million in annual operating and maintenance costs. There remains $2.7 million in local funding required annually after revenue from ticket sales is accounted for.

Neumann detailed the stakeholder meeting, where CRANDIC stated that they were not interested in developing a trail on their track right-of-way at this time. They also indicated interest in financial support of the passenger rail project.

McClatchey asked if the financial forecast included parking lots and/or stations. Neumann replied that those aspects were not included in the projections outlined. The local governments would be responsible for those costs.

Ralston explained that the ridership numbers are grant-ready should the community choose to move forward with the project.

Rummel asked who would be responsible for management of the rail once it is completed. Neumann responded that those details would have to be discussed with the local communities.

9. OTHER BUSINESS

Nagle-Gamm provided an update on the transit study with Coralville, Cambus, and Iowa City to collect data on ridership, preferences for riders, and then created various plans based on this feedback. Due to Covid-19 plans were temporarily stalled, though now there are plans for a draft of the transportation redesign to be presented to the public. There will be some changes proposed to Iowa City for final review. Nagle-Gamm also shared that despite setbacks, electric bikes will be available for the BikeShare Program beginning in Spring 2021.

Robrock explained that Coralville Transit will implement new routes as recommended in the Transit Study, which will begin on Monday, October 19th. These routes will transition from a loop-type to a bidirectional system.

From revealed the University Heights Marriott hotel is slated to open November 29th, 2020.

10. ADJOURNMENT

McClatchey moved to adjourn. Knoche seconded the motion. **The motion passed unanimously.**

Meeting adjourned at 11:32 AM.

MPOJC

Metropolitan Planning Organization of Johnson County

Date: November 3, 2020

To: Transportation Technical Advisory Committee

From: Brad Neumann, Associate Transportation Planner

Re: Agenda item #3: Consider a recommendation to the Urbanized Area Policy Board regarding an amendment to the adopted FY2021-FY2024 MPOJC Transportation Improvement Program (TIP)

The *Transportation Improvement Program* (TIP) is the programming document for all surface transportation projects that receive state or federal funds, including street and highway, transit, rail, bicycle, and pedestrian projects in the Iowa City urbanized area. MPOJC submits the TIP annually to the Iowa Department of Transportation (Iowa DOT) to document the status of local transportation projects using state and federal funds. To utilize these funds, projects must be included in the TIP with an accurate scope and identified funding sources.

The amendment under consideration was originally approved by the Urbanized Area Policy Board at their May 27, 2020 meeting in the MPOJC FY2020-2023 TIP. Unfortunately, TIP amendments do not automatically carry over to the following fiscal year in the Iowa DOT's new tracking system. The only way to correct this issue is for MPOJC to amend the project in the FY2021-2024 TIP.

The City of Iowa City has requested an amendment to the adopted MPOJC FY2021-2024 TIP adding language to the IWV Road improvement project programmed for FY2021. The proposed amendment includes the following:

i. **Current project description: In the City of Iowa City, on IWV Road, from Hebl Avenue east 1.5 miles to Highway 218.**

   **New project description (allows for the installation of a water main between IWV Road and the Iowa City Landfill on Hebl Avenue): In the City of Iowa City, on IWV Road, from Hebl Avenue east 1.5 miles to Highway 218, and on Hebl Avenue from the Iowa City Landfill to IWV Road.**

The change in the description is necessary due to the addition of a water main to the project from IWV Road to the Iowa City Landfill. The change is necessary to finalize the contract with the Iowa Department of Transportation. The project will not include any of the Surface Transportation Block Grant funding MPOJC provided to Iowa City for the road improvement portion of the project.

Please be prepared to make a recommendation to the Urbanized Area Policy Board regarding this TIP amendment. I will be available at the November 10 meeting to answer any questions you have.

cc: Kent Ralston

MPOJC

Metropolitan Planning Organization of Johnson County

**Date:** November 3, 2020

**To:** Transportation Technical Advisory Committee

**From:** Emily Bothell, Sr. Associate Transportation Planner

**Re:** Agenda item #4: Consider a recommendation to the MPOJC Urbanized Area Policy Board regarding Surface Transportation Block Grant (STBG) and Transportation Alternatives Program (TAP) scoring criteria for funds allocated by MPOJC

At your September meeting, staff presented the attached Surface Transportation Block Grant (STBG) and Transportation Alternatives Program (TAP) scoring criteria (revised and approved in November 2018) for Committee review in advance of the STBG and TAP funding cycle. The Committee recommended the scoring criteria remain the same.

At the September Urbanized Area Policy Board meeting, the Board indicated a desire to give credence to stormwater management practices under the 'Environment' criteria. I attached the draft scoring criteria reflective of this change for your review. Please be prepared to make a final recommendation to the Urbanized Area Policy Board at your November meeting.

As a reminder, the scoring criteria is one tool to evaluate potential grant funded projects and the Policy Board is not required to award funding based solely on project scores. The scoring criteria is also used to score and rank projects to be included in the fiscally constrained projects list in the MPOJC Long Range Transportation Plan (LRTP) update.

I will be available at your November 10th meeting to answer any questions you may have.

**Scoring Criteria**
*MPOJC Policy Board Approved November 14, 2018*

At their September meeting, the Urbanized Area Policy Board indicated they wished to make the proposed changes highlighted in red.

**1: Economic Opportunity** – *Supports metro area growth, innovation, job creation, and productivity*

A. Project improves/provides direct access to planned growth area, existing jobs, or retail **+5**
B. Project involves more than one MPO jurisdiction **+1 each (Points Possible: 7)**

**Total Points Possible: 12 ~~(14%)~~ (13%)**
**Score: _____**

**2: Environment**[1] – *Preserves and protects our natural resources, including land, water and air quality*

A. Project promotes air quality improvements via congestion reduction through one or more of the following: Geometric improvements (physical improvements that improve motorist operations), ITS/signalization improvements, Reduction of Vehicle Miles Traveled (VMT), Improvement to turning movements **+1 each (Points Possible: 4)**

B. Project preserves the natural environment through **Stormwater Management practices such as:** Incorporating permeable pavements, bioretention, **or vegetation/landscaping +1 (Points Possible: 1)**

**Total Points Possible: 4 ~~(4%)~~ 5 (6%)**
**Score: _____**

**3: Quality of Life** – *Enhances livability and creates vibrant and appealing places that serve residents throughout their lives*

A. Project directly enhances safe route(s) to school, or improves transportation choices for locations specifically serving multi-family developments or elderly populations **+5**

**Total Points Possible: 5 (6%)**
**Score: _____**

**4: System Preservation** – *Maintained in good and reliable condition*

A. Maintenance or improvement to existing facility/infrastructure **+5**

**Total Points Possible: 5 (6%)**
**Score: _____**

**5: Efficiency** – *Builds a well-connected transportation network and coordinating land use patterns to reduce travel demand, miles travelled, and fossil fuel consumption*

A. Project in a corridor with existing congestion (defined as having LOS E or F during peak hours according to the adopted MPO Travel Demand Model) **+7**
B. Project in a corridor with forecasted future congestion (defined as having LOS E or F during peak hours according to adopted MPO Travel Demand Model, LOS map is attached) **+7**

**Total Points Possible: 14 (16%)**
**Score: _____**

**6: Choice** – *Offers multi-modal transportation options that are affordable and accessible*

A. Project is on existing bus route (bus route map is attached) **+3**
B. Separated trail or wide sidewalk (8' or wider) **+3**
C. Project reduces modal conflict (pedestrian hybrid beacons, grade separation, dedicated bicycle lanes or sharrows, bus pull-off, etc) **+3**

**Total Points Possible: 9 (10%)**
**Score: _____**

**7: Safety** – *Designed and maintained to enhance the safety and security of all users*

A. History involving two or more documented bicycle or pedestrian collisions in the last five years (collision maps are attached) **+7**
B. Top 25 highest MPO accident locations or top 10 highest accident mid-blocks in last three years (accident tables are attached) **+7**

**OR**

C. Sight distance or related safety issue documented by an expert (planner/engineer) **+7**

**Total Points Possible for A&B: 14 (16%)**
**OR**
**Total Points Possible for C: 7**
**Score: _____**

**8: Health** – *Invites and enhances healthy and active lifestyles*

A. Project extends regional trail network (map is attached) **+3**
B. Project addresses critical gap in the regional trail network **+5**

**Total Points Possible: 8 (9%)**
**Score: _____**

**9: Equity**[2] – *Provides access and opportunity for all people and neighborhoods*

A. Project improves transportation network in lower-income neighborhoods **+5**
B. Focus of the project is to correct ADA non-compliance **+3**

**Total Points Possible: 8 (9%)**
**Score: _____**

**10: Local Commitment** – *Gauges local commitment to the project including local and/or state funds pledged*

A. Local match 20.1% - 30% **+1**
B. Local match 30.1% - 40% **+3**
C. Local match 40.1% - 50% **+5**
D. Local match 50.1% - 60% **+7**
E. Local match 60.1% - or more **+9**

**Total Points Possible: 9 (10%)**
**Score: _____**

## Total Score: _____

[1]Not used to score Transportation Alternatives Program projects
[2]Lower-income neighborhoods are defined as being at or below 80% of Area Median Income (AMI) by block group. Source: American Community Survey 5-Year Estimates (2012-2016)

Metropolitan Planning Organization of Johnson County

**Date:** November 3, 2020

**To:** Transportation Technical Advisory Committee

**From:** Emily Bothell, Sr. Associate Transportation Planner

**Re:** Agenda item #5: Discussion regarding potential Federal Functional Classification (FFC) changes for MPOJC Urbanized Area roadways

At your September meeting, MPO staff asked member entities to submit any needed revisions to the Federal Functional Classification (FFC) system in advance of the Surface Transportation Block Grant (STBG) and Transportation Alternatives Program (TAP) funding cycle. As shown in Table 1 the MPO received amendments from Coralville and North Liberty totaling 21.56 miles.

Please review the requested amendments and inform staff of any necessary revisions. Staff will begin working with the Iowa DOT to get 'pre-approval'. Once 'pre-approved' by the DOT, staff will bring a recommendation back to the Committee and Urbanized Area Policy Board for final approval.

**Table 1: Federal Functional Classification Amendment Request 2020**

| NO. | ENTITY | STREET / ROUTE DESCRIPTION | FEDERAL FUNCTIONAL CLASSIFICATION CHANGE | | |
|---|---|---|---|---|---|
| | | | MILES | FROM | TO |
| 1 | *Coralville* | **Commerce Drive** - Coral Ridge Avenue to Heartland Drive | 0.46 | LOCAL | U-COL |
| 2 | *North Liberty* | **Penn Street/North Liberty Road** - I-380 interchange to Dubuque Street | 6.36 | U-MA/U-COL | U-PA |
| 3 | *North Liberty* | **Ranshaw Way/Hwy 965** - North City limits to Forevergreen Road | 6.07 | U-MA | U-PA |
| 4 | *North Liberty* | **Jones Boulevard** - Penn Street to Forevergreen Road | 2.01 | U-COL | U-MA |
| 5 | *North Liberty* | **Forevergreen Road** - I-380 to Ranshaw Way/Hwy 965 | 1.77 | U-COL | U-MA |
| 6 | *North Liberty* | **Kansas Avenue** - Penn Street to Forevergreen Road | 2.05 | LOCAL | U-MA |
| 7 | *North Liberty* | **Zeller Street** - Jones Boulevard to Front Street | 1.00 | LOCAL | U-COL |
| 8 | *North Liberty* | **St. Andrews Drive / 270th St** - from Jones Boulevard to Kansas Avenue | 1.02 | LOCAL | U-COL |
| 9 | *North Liberty* | **Juniper Street** - North Liberty Road to Dubuque Street | 0.82 | LOCAL | U-COL |

U-MA = Urban Minor Arterial

U-COL = Urban Collector
U-PA = Urban Principal Arterial

| | |
|---|---|
| **Total Mileage** | 21.56 |
| **Total "New" Mileage** | 5.35 |
| **Classified Miles Available** | 13.52 |

As a reminder, the functional classification system is a hierarchy of five roadway classes and identifies which roads are Federal Aid Routes. The classes, from highest to lowest, are interstates, principal arterials, minor arterials, collectors, and local streets. Roadways with higher classifications provide better mobility and provide less access to individual properties. Roadways

with lower classifications provide better access to individual properties and provide less overall mobility.

Roadways must provide a high-level of transportation connectivity within your jurisdiction. Roadways that do not demonstrate a high-level of connectivity within the existing FFC system or new roadways that are not programmed in a community's Capital Improvement Program will not be approved by the Iowa DOT. Only 35% of the total road mileage within the urban area can be included in the Federal Functional Classification System.

I will be available at your November 10th meeting to answer any questions you may have.

Link to the Highway Network Interactive Map:
https://iowadot.maps.arcgis.com/apps/MapSeries/index.html?appid=ee5e09b37329492587f8dd4dca4f8e75

MPOJC
Metropolitan Planning Organization of Johnson County

**Date:** November 3, 2020

**To:** Transportation Technical Advisory Committee

**From:** Emily Bothell, Sr. Associate Transportation Planner

**Re:** Agenda Item #6: Consider a recommendation to the MPOJC Urbanized Area Policy Board regarding elements of the MPOJC Long Range Transportation Plan revision: Vision, Guiding Principles, Scoring Criteria

At your September meeting, the Committee concurred with the Long Range Transportation Plan draft vision, guiding principles, and scoring criteria. At the September Urbanized Area Policy Board meeting, the Board also concurred with the Plan's overall vision and guiding principles but indicated a desire to give credence to stormwater management practices under the scoring criteria.

We're asking the Committee to consider a recommendation to the Urbanized Area Policy Board on the transportation vision, guiding principles, and scoring criteria as presented. I will be available at your November 10th meeting to answer any questions you may have.

**Transportation Vision**

*To ensure the strategic use of public investments and policies for the creation of a safe, efficient, and equitable transportation network that enhances economic opportunity and growth while preserving our environment and quality of life.*

**Guiding Principles**

1) *Economic Opportunity – supports growth, innovation, job creation, and productivity.*
2) *Environment – preserves and protects our natural resources, including land, water, and air quality.*
3) *Quality of Life – enhances livability and creates vibrant and appealing places that serve residents throughout their lives.*
4) *System Preservation –maintain the existing facilities in good and reliable condition.*
5) *Choice – offer multi-modal transportation options that are affordable and accessible.*
6) *Safety – transportation network designed and maintained to enhance safety and security of all users.*
7) *Efficiency – builds a well-connected transportation network with coordinated land use patterns to reduce travel demand and delay, miles travelled, and energy consumption.*
8) *Health – invites and enhances healthy and active lifestyles.*
9) *Equity – provide access and opportunity for all people and all neighborhoods.*

**Scoring Criteria**
*MPOJC Policy Board Approved November 14, 2018*

At their September meeting, the Urbanized Area Policy Board indicated they wished to make the proposed changes highlighted in red.

**1: Economic Opportunity** – *Supports metro area growth, innovation, job creation, and productivity*

A. Project improves/provides direct access to planned growth area, existing jobs, or retail **+5**
B. Project involves more than one MPO jurisdiction **+1 each (Points Possible: 7)**

**Total Points Possible: 12 ~~(14%)~~ (13%)**
**Score: _____**

**2: Environment**[1] – *Preserves and protects our natural resources, including land, water and air quality*

A. Project promotes air quality improvements via congestion reduction through one or more of the following: Geometric improvements (physical improvements that improve motorist operations), ITS/signalization improvements, Reduction of Vehicle Miles Traveled (VMT), Improvement to turning movements **+1 each (Points Possible: 4)**

B. Project preserves the natural environment through **Stormwater Management practices such as:** Incorporating permeable pavements, bioretention, **or vegetation/landscaping +1 (Points Possible: 1)**

**Total Points Possible: 4 ~~(4%)~~ 5 (6%)**
**Score: _____**

**3: Quality of Life** – *Enhances livability and creates vibrant and appealing places that serve residents throughout their lives*

A. Project directly enhances safe route(s) to school, or improves transportation choices for locations specifically serving multi-family developments or elderly populations **+5**

**Total Points Possible: 5 (6%)**
**Score: _____**

**4: System Preservation** – *Maintained in good and reliable condition*

A. Maintenance or improvement to existing facility/infrastructure **+5**

**Total Points Possible: 5 (6%)**
**Score: _____**

**5: Efficiency** – *Builds a well-connected transportation network and coordinating land use patterns to reduce travel demand, miles travelled, and fossil fuel consumption*

A. Project in a corridor with existing congestion (defined as having LOS E or F during peak hours according to the adopted MPO Travel Demand Model) **+7**
B. Project in a corridor with forecasted future congestion (defined as having LOS E or F during peak hours according to adopted MPO Travel Demand Model, LOS map is attached) **+7**

**Total Points Possible: 14 (16%)**
**Score: _____**

**6: Choice** – *Offers multi-modal transportation options that are affordable and accessible*

A. Project is on existing bus route (bus route map is attached) **+3**
B. Separated trail or wide sidewalk (8' or wider) **+3**
C. Project reduces modal conflict (pedestrian hybrid beacons, grade separation, dedicated bicycle lanes or sharrows, bus pull-off, etc) **+3**

**Total Points Possible: 9 (10%)**
**Score: _____**

**7: Safety** – *Designed and maintained to enhance the safety and security of all users*

A. History involving two or more documented bicycle or pedestrian collisions in the last five years (collision maps are attached) **+7**
B. Top 25 highest MPO accident locations or top 10 highest accident mid-blocks in last three years (accident tables are attached) **+7**

**OR**

C. Sight distance or related safety issue documented by an expert (planner/engineer) **+7**

**Total Points Possible for A&B: 14 (16%)**
**OR**
**Total Points Possible for C: 7**
**Score: _____**

**8: Health** – *Invites and enhances healthy and active lifestyles*

A. Project extends regional trail network (map is attached) **+3**
B. Project addresses critical gap in the regional trail network **+5**

**Total Points Possible: 8 (9%)**
**Score: _____**

**9: Equity**[2] – *Provides access and opportunity for all people and neighborhoods*

A. Project improves transportation network in lower-income neighborhoods **+5**
B. Focus of the project is to correct ADA non-compliance **+3**

**Total Points Possible: 8 (9%)**
**Score: _____**

**10: Local Commitment** – *Gauges local commitment to the project including local and/or state funds pledged*

A. Local match 20.1% - 30% **+1**
B. Local match 30.1% - 40% **+3**
C. Local match 40.1% - 50% **+5**
D. Local match 50.1% - 60% **+7**
E. Local match 60.1% - or more **+9**

**Total Points Possible: 9 (10%)**
**Score: _____**

## Total Score: _____

[1]Not used to score Transportation Alternatives Program projects
[2]Lower-income neighborhoods are defined as being at or below 80% of Area Median Income (AMI) by block group. Source: American Community Survey 5-Year Estimates (2012-2016)

MPOJC

Metropolitan Planning Organization of Johnson County

**Date:** November 3, 2020

**To:** Transportation Technical Advisory Committee

**From:** Emily Bothell, Sr. Associate Transportation Planner

**Re:** Agenda item #7: Discussion regarding the pending 'Needs Assessment' required for the MPOJC Long Range Transportation Plan revision

This winter MPO staff will be conducting a needs assessment asking MPO entities to submit capital transportation infrastructure needs (projects) to be considered for inclusion in the 2050 Long Range Transportation Plan. Upon receiving each community's list of priority projects, we will preliminarily screen the projects to determine if they are eligible for inclusion using the following criteria:

- Is the project eligible to receive Federal funds such as Surface Transportation Block Grant (STBG), Transportation Alternatives Program (TAP), and/or Federal Transit Administration funding?
- Does the project comply with the adopted MPOJC Complete Streets Policy?
- Is the project located within the adopted MPOJC Planning Boundary?
- Is your community committed to providing necessary matching funds for the project?
- Were the project lists submitted by way of resolution or with a letter of approval signed by the appropriate authority?

Once staff has screened all projects, we will host a series of public input opportunities where the public will be invited to comment on the projects submitted. The projects will subsequently be scored by staff using the Urbanized Area Policy Board approved criteria. The scores and public input will be provided to the Transportation Technical Advisory Committee (TTAC) and Policy Board who will be responsible for ensuring the final project list is fiscally constrained using the MPO's forecasted federal transportation infrastructure budget for years 2022-2050. The final fiscally constrained project list will then be included in the Plan to be adopted in May of 2022.

I will be available at your November 10th meeting to answer any questions you may have.

MPOJC

Metropolitan Planning Organization of Johnson County

Date: November 3, 2020

To: Transportation Technical Advisory Committee

From: Kent Ralston, Executive Director

Re: Agenda Item #8: Consider a recommendation to the MPOJC Urbanized Area Policy Board regarding safety target setting and performance measures for the MPO as required by the Federal Highway Administration

As you may recall, the Federal Highway Administration (FHWA) now requires that MPO's set targets for five safety performance measures as part of the Highway Safety Improvement Program and report them to the State DOT by February 27th each year. For each measure, we will need to choose one of the following options: 1) support the State's 2021 targets (below) by agreeing to plan and program projects so that they contribute to the accomplishment of the State's target for each performance measure, or 2) set our own quantifiable target for each measure within our metropolitan area.

| Performance Measure | Five-year Rolling Averages | |
|---|---|---|
| | 2015-2019 Baseline | 2017-2021 Target |
| Number of Fatalities | 342.0 | 336.8 |
| Fatality Rate* | 1.019 | 0.983 |
| Number of Serious Injuries | 1,420.0 | 1,370.8 |
| Serious Injury Rate* | 4.230 | 4.002 |
| Non-Motorized Fatalities and Serious Injuries | 132.6 | 131.0 |

**Rates are per 100 million vehicle miles traveled (VMT)*

Similar to the safety target setting, the FHWA also requires that MPO's set targets for pavement and bridge, and system reliability performance measures as part of the Highway Safety Improvement Program and report them to the State DOT every two-years. In 2018, the MPO unanimously chose to support the State's two and four-year targets (below). Since that time, and as part of the State's two-year review and update to the FHWA, the DOT revised two of the adopted four-year performance measures.

| Performance measure | 2017 Baseline | 2-year target | 2-year performance | Original 4-year target | Adjusted 4-year target |
|---|---|---|---|---|---|
| Interstate pavements in Good condition* | N/A | N/A | 66.4% | 49.4% | |
| Interstate pavements in Poor condition* | N/A | N/A | 0.4% | 2.7% | |
| Non-Interstate NHS pavements in Good condition | 50.9% | 48.8% | 55.4% | 46.9% | |
| Non-Interstate NHS pavements in Poor condition | 10.6% | 13.2% | 9.3% | 14.5% | |
| NHS bridges classified as in Good condition | 48.9% | 45.7% | 48.7% | 44.6% | |
| NHS bridges classified as in Poor condition | 2.3% | 3.7% | 2.2% | 3.2% | |
| Person-miles traveled on the Interstate that are reliable | 100.0% | 99.5% | 99.3% | 99.5% | 98.5% |
| Person-miles traveled on the non-Interstate NHS that are reliable* | N/A | N/A | 96.3% | 95.0% | |
| Truck Travel Time Reliability (TTTR) Index | 1.12 | 1.14 | 1.19 | 1.14 | 1.21 |

**2-year target not required for the first performance period*

Subsequently, for each of the adjusted four-year targets, we will also need to choose one of the following options: 1) support the State's adjusted four-year targets by agreeing to plan and program projects so that they contribute to the accomplishment of the State's adjusted targets for the performance measure, or 2) set our own quantifiable target for each measure within our metropolitan area.

In either event, we are required to state how our annual projects programmed in our Transportation Improvement Program show progress towards meeting the adopted targets and provide similar information about how projects are satisfying the performance measures in our next required update to the Long Range Transportation Plan in 2022. While MPO targets will not be formally evaluated to measure annual progress toward meeting adopted targets, the State's targets will be assessed by the FHWA.

Similar to past years, I recommend that we (again) adopt the State's targets. If at any time we feel that creating our own local targets would provide an additional benefit, we will have an opportunity to do so each year. As in years past, staff does not see a clear benefit to adopting our own criteria.

I have attached supporting information from the DOT for your reference. Please be prepared to consider this item and provide a recommendation to the Urbanized Area Policy Board.

I will be at your November 10th meeting to answer any questions you may have.

# 2021 Iowa DOT FHWA Safety Targets

August 2020

In February 2020, the Iowa DOT began the process of reviewing data to set performance targets for the five safety performance measures required by FHWA in 23 CFR 490 (also referred to as "PM1"). For the safety area, these targets are required to be five-year rolling averages and must be set annually. The five required measures are:

1. Number of fatalities
2. Rate of fatalities per 100 million vehicle miles traveled (VMT)
3. Number of serious injuries
4. Rate of serious injuries per 100 million VMT
5. Number of non-motorized fatalities and non-motorized serious injuries

These targets must be set as five-year rolling averages for 2017-2021 and will be submitted as part of the State's Highway Safety Improvement Program (HSIP) annual report, due August 31, 2020. The first round of target setting for these measures occurred in 2017, and the same approach was used again in 2018 and 2019. Because of the relatively short-term nature of the targets, the methodology being utilized focuses on historical information and creates a forecast based on trends. The approach relies on the use of prediction intervals around the trend model forecast to inform a "risk-based" target setting method.

A prediction interval is defined as: "In statistical inference, specifically predictive inference, a prediction interval is an estimate of an interval in which future observations will fall, with a certain probability, given what has already been observed."[1] A prediction interval approach enables a focus on the acceptable risk of meeting, or failing to meet a target, which allows stakeholders at all levels of the organization to understand the targets in better context. Since 2017, the safety targets working group has annually evaluated several prediction intervals and continued to recommend a prediction interval of 75%, meaning that there would be 75% confidence that the actual number of fatalities and injuries would be lower than the targets. Management agreed with the use of a 75% confidence level, and it is being used again in 2020 for target setting.

For each measure, a time-series model was developed. An integrated moving average (IMA) model has been used since 2017. The following pages show the model's output and predictions at various confidence levels for each measure. This helps illustrate the level of risk associated with various confidence levels, as well as the fact that higher confidence levels lead to more conservative targets. The final page shows the 2017-2021 safety targets.

The safety data used in the forecast can be obtained from the Iowa Crash Analysis Tool (ICAT) and Motor Vehicle Division daily fatality count from the following websites.

ICAT: https://icat.iowadot.gov/
Fatality Report: https://www.iowadot.gov/mvd/stats/daily.pdf

[1] https://en.wikipedia.org/wiki/Prediction_interval, 2019-May-02

## Measure 1: Number of fatalities

Figure 1 shows the historical series (black line), the integrated moving average (IMA) model (red line), the model's forecast values (black dots), and a set of prediction interval (PI) bounds (blue lines). The blue lines shown in this figure correspond to the 75% confidence level used for targets. Table 1 shows the model's forecast of fatalities for 2020 and 2021 and the upper prediction interval value at different confidence levels.

*Figure 1: IMA model and forecast for annual fatalities*

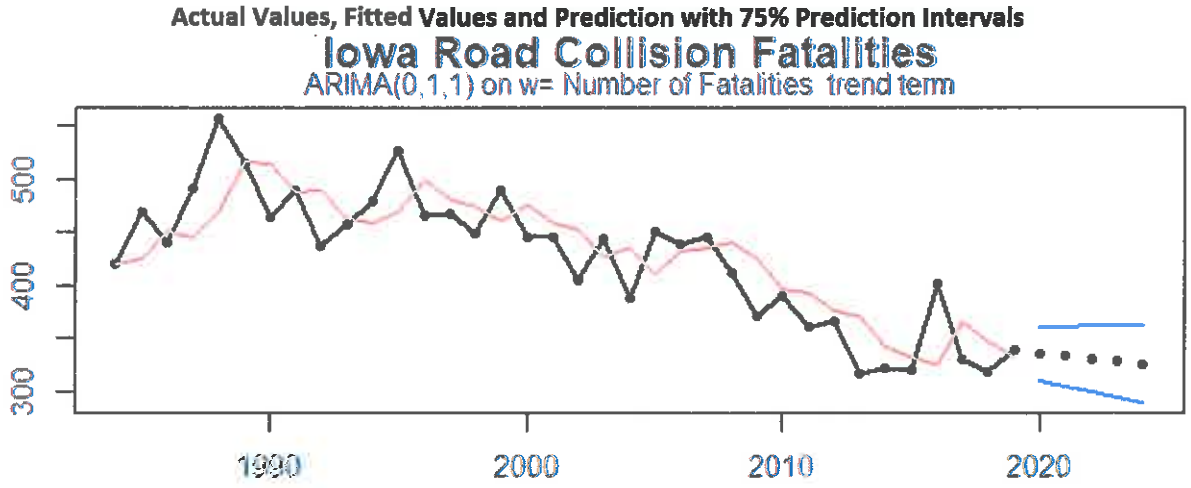



*Table 1: Forecast road fatalities and upper prediction values at selected probability levels*

| Year | Forecast | 70% | 75% | 80% | 85% | 97.5% |
|---|---|---|---|---|---|---|
| **2020** | 335 | 355 | 360 | 366 | 374 | 408 |
| **2021** | 333 | 355 | 361 | 368 | 376 | 415 |

To be 75% confident of the 2021 target value, the five-year rolling average target for 2017-2021 would be set by averaging the forecast value of 335 fatalities for 2020 and the 75% PI value of 361 as the 2021 value along with the actual fatalities for 2017, 2018, and 2019. The five-year rolling average target for fatalities is presented in Table 7.

## Measure 2: Fatalities per hundred million vehicle miles traveled

This measure is a rate conversion, using the forecast developed for Measure 1 and the estimated VMT for the forecast period. The forecast values of VMT were provided by the Systems Planning Bureau using their preferred methodology, linear ETS, which is an exponential smoothing approach. The linear ETS method provides the most reasonable results and adjusts for seasonality or fluctuations in the data. The annual VMT forecast by this method for 2021 is expected to be 35.1 billion (35,059,220,000).

*Table 2: Fatality rate forecast at selected probability levels*

| Year | VMT forecast (x100M) | Forecast fatality rate | 70% | 75% | 80% | 85% | 97.5% |
|---|---|---|---|---|---|---|---|
| **2020** | 34,685.59 | 0. 9658 | 1.0234 | 1.0378 | 1.0551 | 1.0782 | 1.1762 |
| **2021** | 35,059.22 | 0. 9498 | 1.0125 | 1.0296 | 1.0496 | 1.0724 | 1.1837 |

To be 75% confident of the 2021 target value, the five-year rolling average target for 2017-2021 would be set by averaging the forecast value of 0.9658 fatalities per hundred million VMT for 2020 and the 75% PI value of 1.0296 for 2021 along with the actual fatality rates for 2017, 2018, and 2019. The five-year rolling average target for fatality rate is presented in Table 7.

## Measure 3: Number of serious injuries

The figure below shows the historical series (black line), the model (red line), the model's forecast values (black dots), and a set of prediction interval bounds (blue lines) for the number of serious injuries resulting from collisions. In this case, due to a discontinuity between 2000 and 2001, the model is constructed using only data from 2001 and later.

*Figure 3: IMA model and forecast for serious injuries*

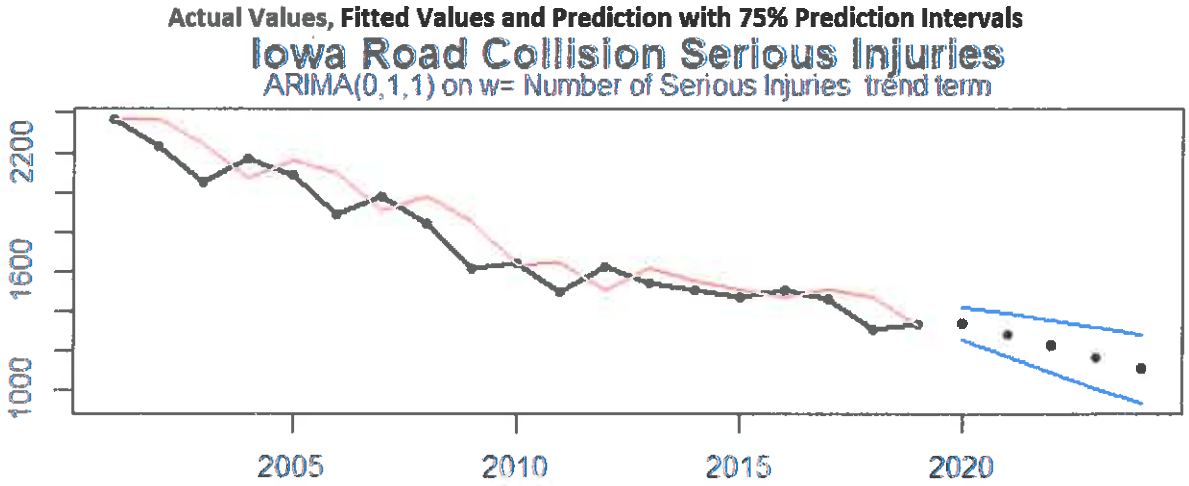



*Table 3: Forecast road serious injuries and upper prediction values at selected probability levels*

| Year | Forecast | 70% | 75% | 80% | 85% | 97.5% |
|---|---|---|---|---|---|---|
| **2020** | 1,340 | 1,403 | 1,422 | 1,442 | 1,466 | 1,578 |
| **2021** | 1,283 | 1,369 | 1,394 | 1,421 | 1,453 | 1,605 |

To be 75% confident of the 2021 target value, the five-year rolling average target for 2017-2021 would be set by using the forecast value of 1,340 for 2020 and the 75% PI value of 1,394 for 2021 along with the actual serious injuries for 2017, 2018, and 2019. The five-year rolling average target for serious injuries is presented in Table 7.

## Measure 4: Serious injury rate per hundred million vehicle miles traveled

This measure is a rate conversion, using the forecast developed for Measure 3 and the estimated VMT for the forecast period. The forecast values of VMT were provided by the Systems Planning Bureau using their preferred methodology, linear ETS, which is an exponential smoothing approach. The linear ETS method provides the most reasonable results and adjusts for seasonality or fluctuations in the data. The annual VMT forecast by this method for 2021 is expected to be 35.1 billion (35,059,220,000).

*Table 4: Serious Injury rate forecast at selected probability levels*

| Year | VMT forecast (x100M) | Forecast serious injury rate | 70% | 75% | 80% | 85% | 97.5% |
|---|---|---|---|---|---|---|---|
| **2020** | 34,685.59 | 3.8632 | 4.0449 | 4.0996 | 4.1573 | 4.2265 | 4.5494 |
| **2021** | 35,059.22 | 3.6595 | 3.9048 | 3.9761 | 4.0531 | 4.1444 | 4.5779 |

To be 75% confident of the 2021 target value, the five-year rolling average target for 2017-2021 would be set by averaging the forecast value of 3.8632 serious injuries per hundred million VMT for 2020 and the 75% PI value of 3.9761 for 2021 along with the actual serious injury rates for 2017, 2018, and 2019. The five-year rolling average target for serious injury rate is presented in Table 7.

## Measure 5: Number of non-motorized fatalities & serious injuries

The figure below shows the historical series (black line), the model (red line), the model's forecast values (black dots), and a set of prediction interval bounds (blue lines) for the number of non-motorized fatalities and serious injuries resulting from collisions with a vehicle. The model is constructed using all available data from 2009 and later.

*Figure 5: IMA model and forecast for annual non-motorized fatalities and serious injuries*

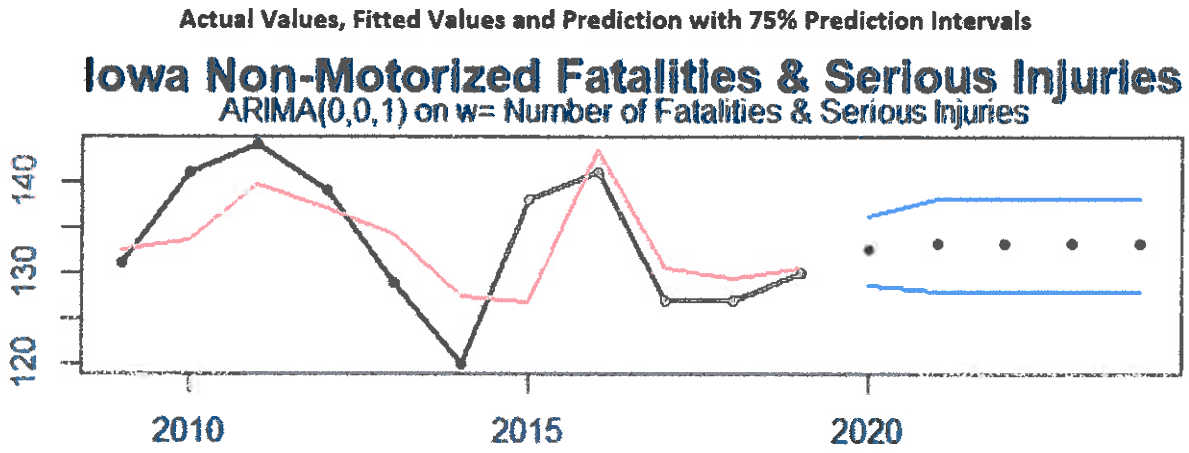



*Table 5: Forecast non-motorized fatalities and serious injuries, and upper prediction values at selected probability levels*

| Year | Forecast | 70% | 75% | 80% | 85% | 97.5% |
|---|---|---|---|---|---|---|
| **2020** | 133 | 135 | 136 | 137 | 138 | 143 |
| **2021** | 133 | 137 | 138 | 140 | 141 | 148 |

To be 75% confident of the 2021 target value, the five-year rolling average target for 2017-2021 would be set by using the forecast value of 133 for 2020 and the 75% PI value of 138 for 2021 along with the actual non-motorized fatalities and serious injuries for 2017, 2018, and 2019. The five-year rolling average target for non-motorized fatalities and serious injuries is presented in Table 7.

# Iowa DOT 2017-2021 safety targets

While the preceding forecasts were developed for each year, the targets are required to be set as five-year rolling averages, as crashes are subject to significant year-to-year variability. The following table gives the actual numbers of fatalities, serious injuries, non-motorized injuries and fatalities, and the vehicle miles traveled (VMT, in millions) for each respective year, which are the basis for the five-year rolling averages presented in Table 7.

*Table 6: Annual data summary*

| Year | Fatalities | Fatality rate | Serious injuries | Serious injuries rate | Non-motorized injuries and fatalities | VMT (millions) |
|---|---|---|---|---|---|---|
| **2012** | 365 | 1.156 | 1,629 | 5.158 | 139 | 31,581 |
| **2013** | 317 | 1.005 | 1,545 | 4.898 | 129 | 31,542 |
| **2014** | 322 | 0.996 | 1,509 | 4.667 | 120 | 32,332 |
| **2015** | 320 | 0.967 | 1,470 | 4.440 | 138 | 33,109 |
| **2016** | 402 | 1.209 | 1,510 | 4.540 | 141 | 33,263 |
| **2017** | 331 | 0.981 | 1,467 | 4.347 | 127 | 33,751 |
| **2018** | 319 | 0.952 | 1,312 | 3.916 | 127 | 33,507 |
| **2019** | 338 | 0.985 | 1,341 | 3.908 | 130 | 34,312 |

Table 7 shows the historical and predicted five-year rolling averages for the five targets. The **highlighted numbers represent Iowa's 2017-2021** safety targets.

*Table 7: 5-year rolling average actuals and 2021 targets*

| Five-Year Rolling Averages | | | | | |
|---|---|---|---|---|---|
| Year | Fatalities | Serious injuries | Non-motorized injuries and fatalities | Fatalities per hundred million VMT | Serious injuries per hundred million VMT |
| 2008-12 | 379.6 | 1,646.0 | Data not available | 1.211 | 5.250 |
| 2009-13 | 360.6 | 1,586.8 | 136.8 | 1.146 | 5.040 |
| 2010-14 | 350.8 | 1,565.6 | 134.6 | 1.108 | 4.942 |
| 2011-15 | 336.8 | 1,530.8 | 134.0 | 1.054 | 4.788 |
| 2012-16 | 345.2 | 1,532.6 | 133.4 | 1.066 | 4.741 |
| 2013-17 | 338.4 | 1,500.2 | 131.0 | 1.131 | 4.578 |
| 2014-18 | 338.8 | 1,453.6 | 130.6 | 1.021 | 4.382 |
| 2015-19 | 342.0 | 1,420.0 | 132.6 | 1.019 | 4.230 |
| Forecast 75% prediction interval value | | | | | |
| 2016-20 | 350.0 | 1,410.4 | 132.2 | 1.033 | 4.162 |
| **2017-21 targets** | **336.8** | **1,370.8** | **131.0** | **0.983** | **4.002** |

# Iowa DOT System Performance and Freight Measures – Mid Performance Period Progress Review Update

September 2020

## Performance measures

Through the Moving Ahead for Progress in the 21st Century (MAP-21) Act, Congress required the establishment of measures to assess performance in several areas, including performance of the Interstate and non-Interstate National Highway System (NHS), now codified in 23 CFR 490.507, and freight movement on the Interstate System, now codified in 23 CFR 490.607. The State Departments of Transportation (DOTs), as well as metropolitan planning organizations (MPOs) with applicable roadways within their metropolitan planning areas, were required to set targets for the following performance measures, known as "PM3"[1].

1. Percent of the person-miles traveled on the Interstate that are reliable (referred to as the Interstate Travel Time Reliability measure)
2. Percent of person-miles traveled on the non-Interstate NHS that are reliable (referred to as the Non-Interstate Travel Time Reliability measure).
3. Freight movement on the Interstate System - the Truck Travel Time Reliability (TTTR) Index (referred to as the Freight Reliability measure)

States were required to set 2- and 4-year targets for these measures by May 20, 2018, and reported them to FHWA as part of the submittal of State baseline performance period reports on October 1, 2018. States are required to submit a mid-performance period progress report by October 1, 2020. This update corresponds to the middle of the first 4-year performance reporting period, at a time designated by regulation to allow for states to review their 4-year targets and potentially make adjustments.

## Data and methodology

Data for these measures is provided by FHWA through the National Performance Management Research Data Set (NPMRDS). This is a national data set of average travel times on the NHS. Since February 2017, speed and travel time data from INRIX has been used for the NPMRDS, which is hosted by the University of Maryland Center for Advanced Transportation Technology Laboratory (CATT Lab). States and MPOs can access the raw data at no cost. CATT Lab has also developed a MAP-21 tool to assist States and MPOs in calculating PM3 measures. This tool is available through a pooled fund effort led by the American Association of State Highway and Transportation Officials (AASHTO). Iowa DOT has joined the pooled fund for a five-year period, which provides access to the MAP-21 tool and output for the State and Iowa MPOs.

In addition to joining the pooled fund, in 2018 Iowa DOT downloaded the NPMRDS data and processed it internally to calculate the PM3 measures in parallel with the CATT Lab's efforts.

[1] This target-setting process and memo focuses only on PM3 measures applicable to Iowa. The final rule for PM3 also contains measures related to air quality, which are not required for Iowa or its MPOs as there are no non-attainment areas in the State.

Long-term, Iowa DOT anticipates continuing to conduct this analysis in-house to improve its understanding of the measures and the raw data. The internal analysis and CATT Lab output have both evolved since early 2018, as clarifications have been provided from FHWA on the measure calculations. Additionally, January 2017 NPMRDS data was reformatted to match the February-December 2017 NPMRDS data, to allow for a full year of consistent data for 2017.

The CATT Lab annual and monthly output for Iowa's PM3 measures in 2017, 2018, and 2019 was downloaded on March 17, 2020 and is being used to review progress towards 2-year targets and consider adjustments to 4-year targets.

NPMRDS data was collected for several years prior to 2017, but due to a change in vendor, only three complete years of data is available from NPMRDS that is formatted in the manner data is currently being collected. This creates challenges in setting targets because there is not enough information to create trends or obtain a good understanding of the natural variability in the annual measure. As a proxy for annual variation, the monthly variance of each measure for the three available years (36 months) is used. The data were analyzed to seek a "best fit" theoretical distribution for each measure, and parameters of those distributions were estimated. The cumulative distribution properties of each distribution were used to derive probabilistic (risk-based) targets. This is described for each target below.

## Measure 1: Interstate travel time reliability measure

State DOTs were required to establish 2- and 4-year targets for percent of reliable person-miles on the Interstate system. This measure is calculated in the same manner as non-Interstate NHS reliability (measure 2).

The level of travel time reliability (LOTTR) is the metric for determining the performance measure. The LOTTR is calculated for four time periods:

1. Weekdays from 6:00 a.m. - 10:00 a.m.
2. Weekdays from 10:00 a.m. - 4:00 p.m.
3. Weekdays from 4:00 p.m. - 8:00 p.m.
4. Weekends from 6:00 a.m. - 8:00 p.m.

For each time period across an entire year, the LOTTR is defined as the ratio of the longer travel times (80th percentile) to a "normal" travel time (50th percentile) for all vehicles. Data are analyzed based on 15-minute groupings of speeds and travel times for traffic message channels (TMCs), which are highways segments that NPMRDS data is grouped into. FHWA defines a segment as reliable if its LOTTR is less than 1.5 during all four time periods. If the highest LOTTR is 1.5 or above, the segment is unreliable. To translate the LOTTR to the performance measure, the length of each segment is multiplied by its annual average daily traffic (AADT) and average occupancy factor for all vehicles (FHWA's default is 1.7), which results in person-miles. This calculation is done for reliable segments and for all segments. Dividing reliable segment person-miles by all person-miles provides the measure of percent of travel time reliability.

To develop targets, the percentage of reliable Interstate person-miles was calculated for each of the 36 months in calendar years 2017 - 2019, and the annual figures were also calculated. Using Palisade @RISK software, the 36 monthly observations were analyzed and various theoretical distributions were fit and compared. The monthly data are heavily skewed, and naturally cannot exceed 100%. Therefore, a truncated distribution such as a "triangular" distribution seems logical, and in fact is suggested as a best-fit option. As shown in Figure 1,

the software fits the distribution and generates the parameters. We can then use this theoretical distribution to obtain target values corresponding to various levels of confidence. For example, to be at least 75 percent confident in achieving the target, we would look for the point in the theoretical curve where the cumulative probability (area under the curve) is 0.75. There is a function in the @RISK package that allows us to calculate such values, and it returns 98.89%. Therefore, if we want to be at least 75 percent confident in achieving our target, we should set it to 98.89%.

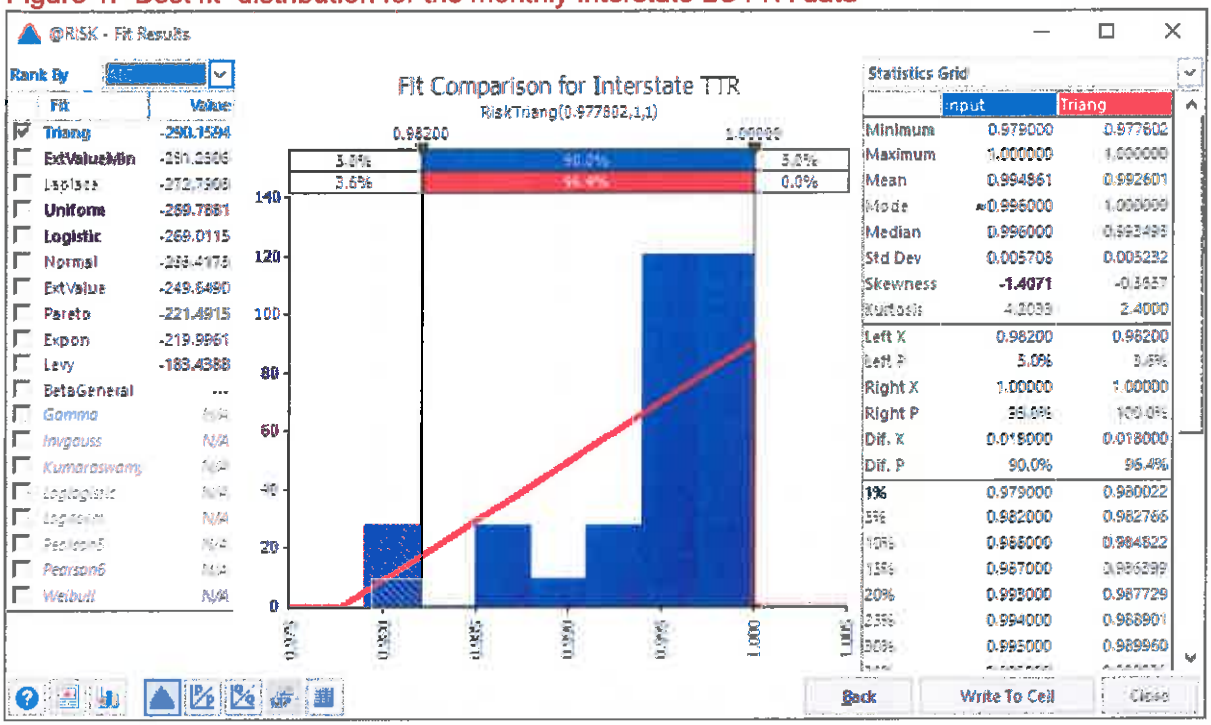
This assumes that the monthly values and the annual values follow the same distribution, however we know that the relationship between monthly and annual data is not straightforward, as the LOTTR is recalculated based on the 80$^{th}$ and 50$^{th}$ percentile travel times for the specific timeframe being evaluated. This can result in annual values that are higher than any single monthly value or the average of monthly values. Because of this issue, we analyzed the annual values to see how "likely" they would be to come from the distribution of the monthly values. We observed that these values were typical of the theoretical distribution, so we therefore did not find evidence to suggest significant problems with the assumption. This assumption should be more rigorously explored as additional annual figures become available.

Table 1: Level of travel time reliability for the Interstate system
4-year targets at various confidence levels

| Confidence Level | Target |
|---|---|
| 70 percent | 99.00% |
| **75 percent** | **98.89%** |
| 80 percent | 98.77% |
| 85 percent | 98.64% |
| 90 percent | 98.48% |
| 95 percent | 98.28% |

The target value is rounded down to the nearest half percent. Using a 75 percent confidence level results in a revised 4-year target of 98.5 percent for person-miles traveled on the Interstate that are reliable.

Figure 1: "Best fit" distribution for the monthly Interstate LOTTR data



## Measure 2: Non-Interstate NHS travel time reliability measure

State DOTs were also required to establish 2- and 4-year targets for the percent of reliable person-miles on the non-Interstate NHS. The metrics and measure are calculated in the same manner as measure 1, and the same methodology was used to derive targets.

To develop targets, the percentage of reliable non-Interstate person-miles was calculated for each of the 36 months in calendar years 2017 - 2019, and the annual figures were also calculated. Using Palisade @RISK software, the 36 monthly observations were analyzed and various theoretical distributions were fit and compared. Although it is not an ideal fit for the data, the software recommends using a "normal" distribution, and this makes sense given what we know about the process that generates the data values. As shown in Figure 2 the software fits the distribution and generates the parameters. We can then use this theoretical distribution to obtain target values corresponding to various levels of confidence. For example, to be at least 75 percent confident in achieving the target, we would look for the point in the theoretical curve where the cumulative probability (area under the curve) is 0.75. There is a function in the @RISK package that allows us to calculate such values, and it returns 95.39%. Therefore, if we want to be at least 75 percent confident in achieving our target, we should set it to 95.39%.

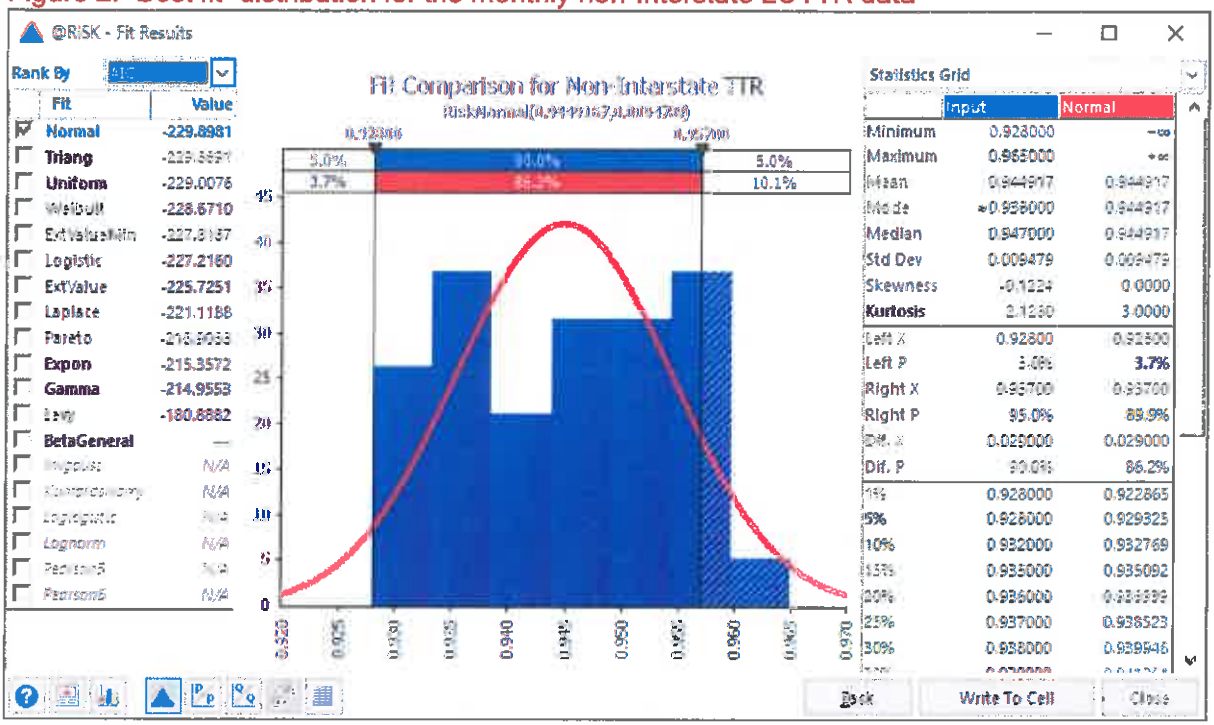
This assumes that the monthly values and the annual values follow the same distribution, however we know that the relationship between monthly and annual data is not straightforward, as the LOTTR is recalculated based on the 80$^{th}$ and 50$^{th}$ percentile travel times for the specific timeframe being evaluated. This can result in annual values that are higher than any single monthly value or the average of monthly values. Because of this issue, we analyzed the annual values to see how "likely" they would be to come from the distribution of the monthly values. We observed that these values were atypical of the theoretical distribution, so we therefore used the same spread (standard deviation) as the monthly data, but we substituted the mean of the three annual observations, resulting in a "shifted" distribution. Instead of the monthly mean value of 94.49%, the annual mean value of 96.03% was used to center the distribution.

Table 2: Level of travel time reliability for the non-Interstate NHS 4-year targets at various confidence levels

| Confidence Level | Target |
|---|---|
| 70 percent | 95.54% |
| **75 percent** | **95.39%** |
| 80 percent | 95.24% |
| 85 percent | 95.05% |
| 90 percent | 94.82% |
| 95 percent | 94.47% |

The target value is rounded down to the nearest half percent. Using a 75 percent confidence level results in a target of 95.0% for person-miles traveled on the non-Interstate NHS that are reliable. The 4-year target for this measure was originally set at 95.0%, therefore there is no change to the target for non-Interstate NHS reliability.

Figure 2: "Best fit" distribution for the monthly non-Interstate LOTTR data



## Measure 3: Truck travel time reliability

State DOTs were required to establish 2- and 4-year targets for truck travel time reliability (TTTR) on the Interstate System. This measure is calculated similarly to measures 1 and 2, but the metric's parameters are different and it is not translated into a percentage of reliable miles. This measure also uses a subset of the NPMRDS data that contains only truck data, rather than the all-vehicle data used for measures 1 and 2.

The TTTR index is the metric for determining the performance measure. The TTTR is calculated for five time periods:

1. Weekdays from 6:00 a.m. - 10:00 a.m.
2. Weekdays from 10:00 a.m. - 4:00 p.m.
3. Weekdays from 4:00 p.m. - 8:00 p.m.
4. Overnight (all days) from 8:00 p.m. - 6:00 a.m.
5. Weekends from 6:00 a.m. - 8:00 p.m.

For each time period across an entire year, the TTTR is defined as the ratio of the longer truck travel times (95th percentile) to a "normal" truck travel time (50th percentile). Data are analyzed based on 15-minute groupings of speeds and travel times for traffic message channels (TMCs), which are highways segments that NPMRDS data is grouped into. For each TMC, the highest TTTR value is carried forward into the measure calculation. To translate the individual TMC values into the overall TTTR index, the length of each segment is multiplied by its maximum TTTR of the five time periods. These length weighted TTTRs are then divided by the sum of all segment lengths to result in the TTTR index for the performance measure.

To develop targets, the TTTR was calculated for each of the 36 months in calendar years 2017 - 2019, and the annual figures were also calculated. Using Palisade @RISK software, the 36 monthly observations were analyzed and various theoretical distributions were fit and compared. The software recommends using a Pareto distribution, however the Lognormal distribution also performs well and has the advantage of making more sense given the nature of the TTTR measure. As shown in Figure 3, the software fits the distribution and generates the parameters. We can then use this theoretical distribution to obtain target values corresponding to various levels of confidence. For example, to be at least 75 percent confident in achieving the target, we would look for the point in the theoretical curve where the cumulative probability (area under the curve) is 0.75. There is a function in the @RISK package that allows us to calculate such values, and it returns 1.20. Therefore, if we want to be at least 75 percent confident in achieving our target, we should set it to 1.20.

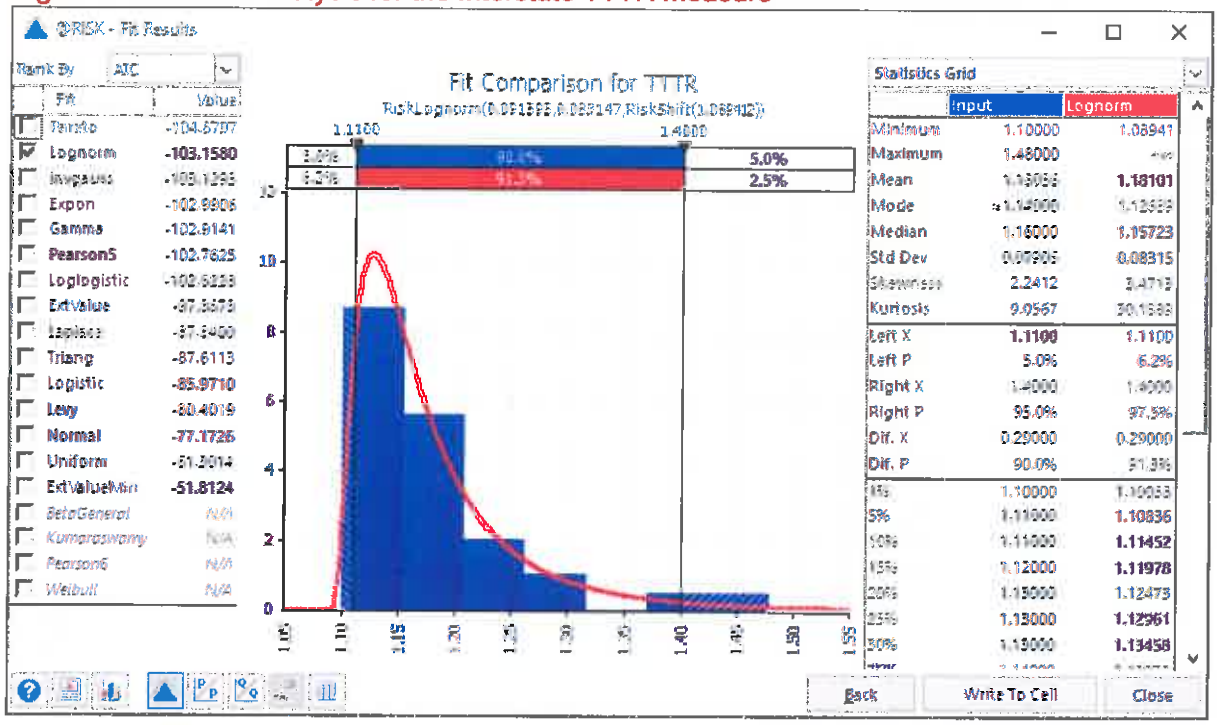
This analysis assumes that the monthly values and the annual values follow the same distribution, however we know that the relationship between monthly and annual data is not straightforward, as the TTTR is recalculated based on the 95$^{th}$ and 50$^{th}$ percentile travel times for the specific timeframe being evaluated. This can result in annual values that are lower than any single monthly value or the average of monthly values. Because of this issue, we analyzed the annual values to see how "likely" they would be to come from the distribution of the monthly values. We observed that these values were typical of the theoretical distribution, so we therefore did not find evidence to suggest significant problems with the assumption. This assumption should be more rigorously explored as additional annual figures become available.

Table 3: Truck travel time reliability for the Interstate System
4-year targets at various confidence levels

| Confidence Level | Target |
|---|---|
| 70 percent | 1.191 |
| **75 percent** | **1.204** |
| 80 percent | 1.220 |
| 85 percent | 1.241 |
| 90 percent | 1.273 |
| 95 percent | 1.332 |

**The target is rounded up to the nearest hundredth. Using a 75 percent confidence level results in a revised 4-year target of 1.21 for truck travel time reliability on the Interstate system.**

Figure 3: Statistical analysis for the Interstate TTTR measure



## Iowa DOT FHWA performance targets for system reliability and freight

Through revisiting the original analysis and targets at the mid-point of the performance period with more data available, it is clear that we have had and continue to have an incomplete understanding of the natural variability in these mobility measures. Therefore, it is not surprising that we should take this opportunity to employ some of our learning and revise the targets. Our analysis suggests revising two of the three targets (Interstate TTR and Truck TTR), while making no change to the non-Interstate NHS TTR target.

Iowa DOT's suggested 4-year targets are shown in Table 4. The targets are being set at the 75 percent confidence level. This still means that, assuming the processes generating these measures follow these distributions, we have about a one in four chance of not meeting these targets.

Table 4: Iowa DOT 4-year targets for system reliability and freight performance measures

| | Interstate level of travel time reliability 2022 target | Non-interstate NHS level of travel time reliability 2022 target | Truck travel time reliability index 2022 target |
|---|---|---|---|
| Original | 99.5% | 95.0% | 1.14 |
| **Revised** | **98.5%** | **95.0%** | **1.21** |

MPOJC
Metropolitan Planning Organization of Johnson County

Date: November 3, 2020

To: Transportation Technical Advisory Committee

From: Sarah Walz, Associate Transportation Planner

Re: Agenda Item #9: Update on MPO Trail Count Program

Between May and October each year, the MPO collects bicycle and pedestrian counts along the regional network of trails and sidepaths (wide sidewalks). Data is collected using an infrared device; the device does not differentiate between bicycles and pedestrians. Each count lasts 7 days; we present the daily average in the charts included in this report.

A number of factors influence the counts: the month or week the count was taken, weather, nearby trail or road construction or closures, the opening of additional trail access points, or increased development in the area. These variables make it difficult to draw conclusions based on year-over-year comparisons, though it is possible to see trends over longer periods of time.

We suspect that trail usage may be up this year due to the Covid-19 pandemic as many people were seeking out the trail system for a healthy alternative to indoor activities such as schools, gyms, and recreation centers.

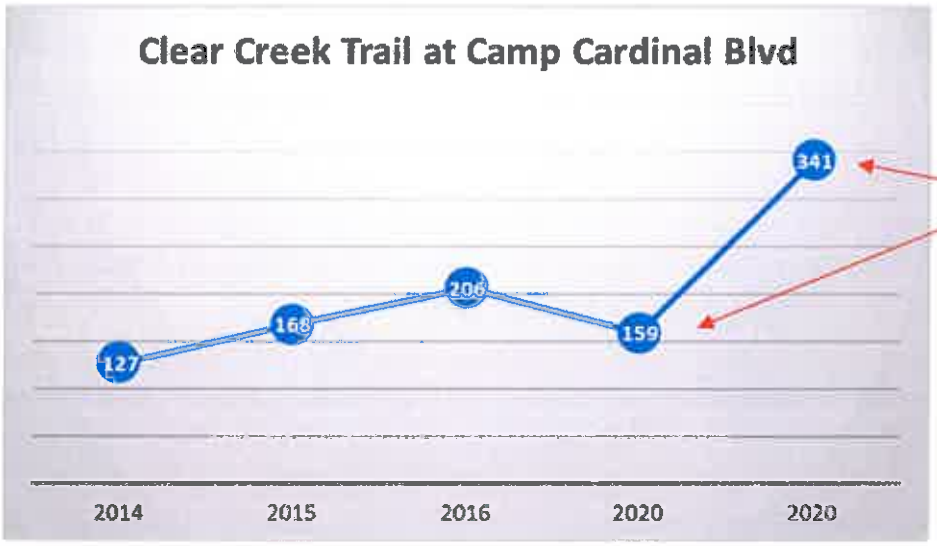
**First-time counts were taken at the following locations:**

- Iowa River Corridor Trail between Myrtle Avenue and Burlington Street— 436
- Highway 1 Trail at Sunset— 76 (spring 2020); 79 (fall 2020)

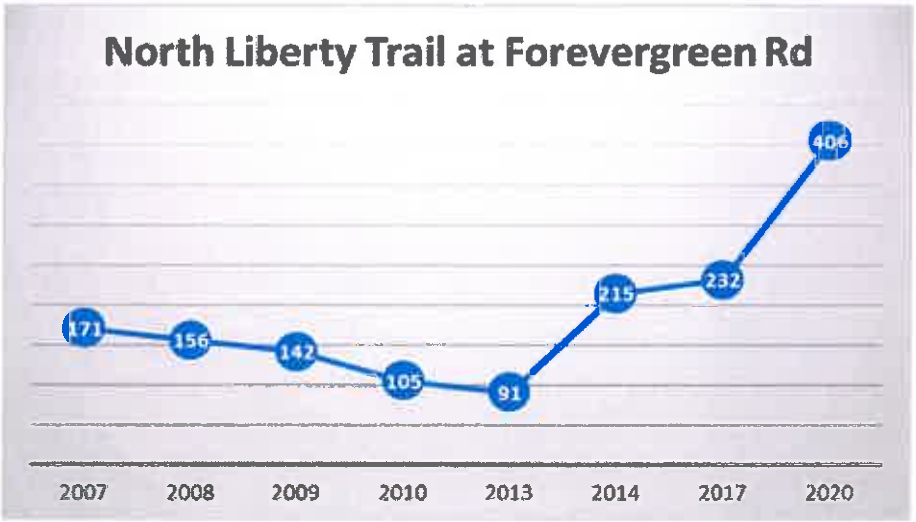
**A second year count was taken at the following location:**

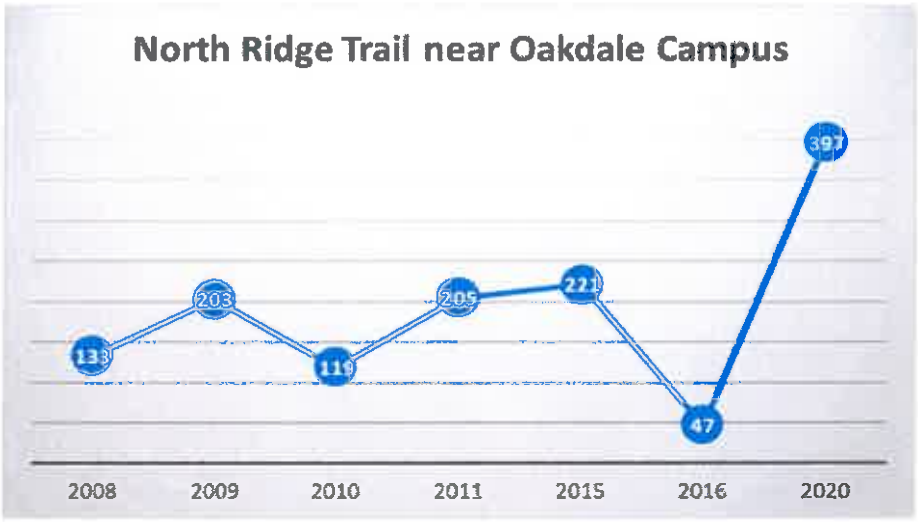
- Iowa River Corridor Trail, Mahaffey Bridge Rd. near Southslope—99 (2016); 247 (2020)

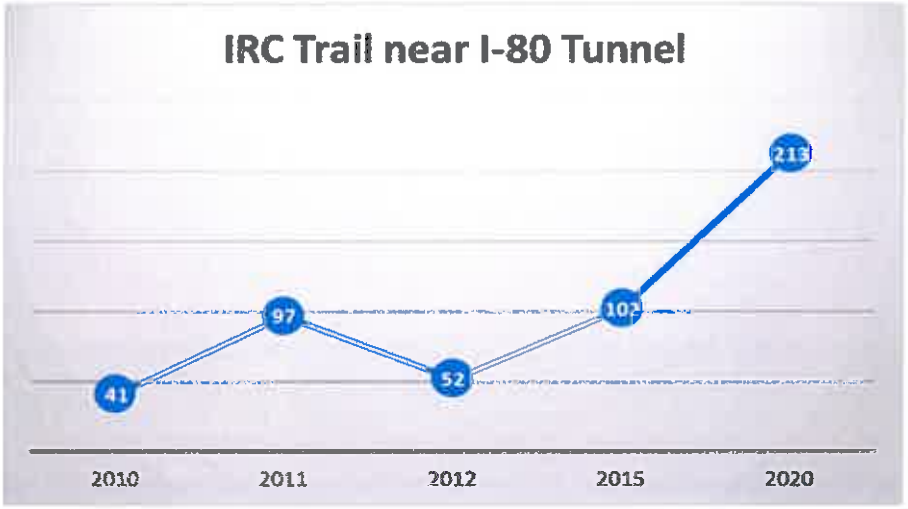
**The following charts show data for those locations that have more than 2 years of data:**

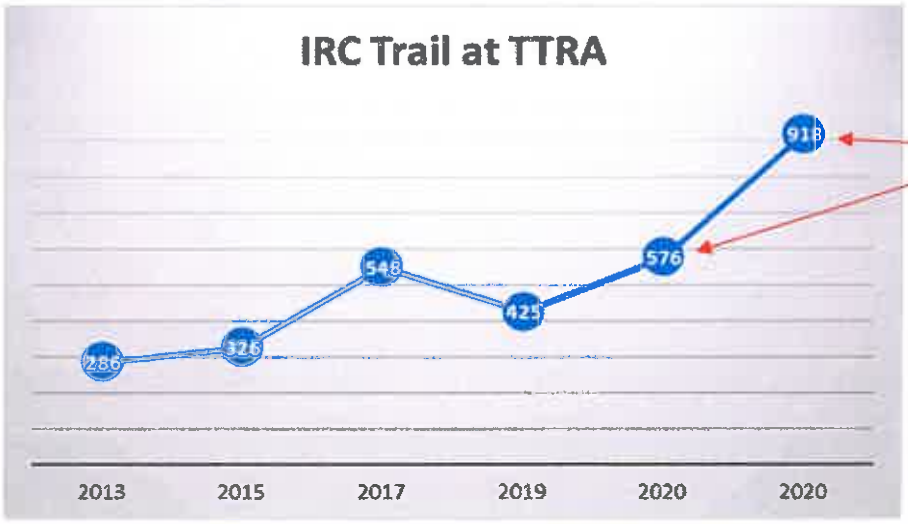




Two counts taken in 2020—spring and fall.

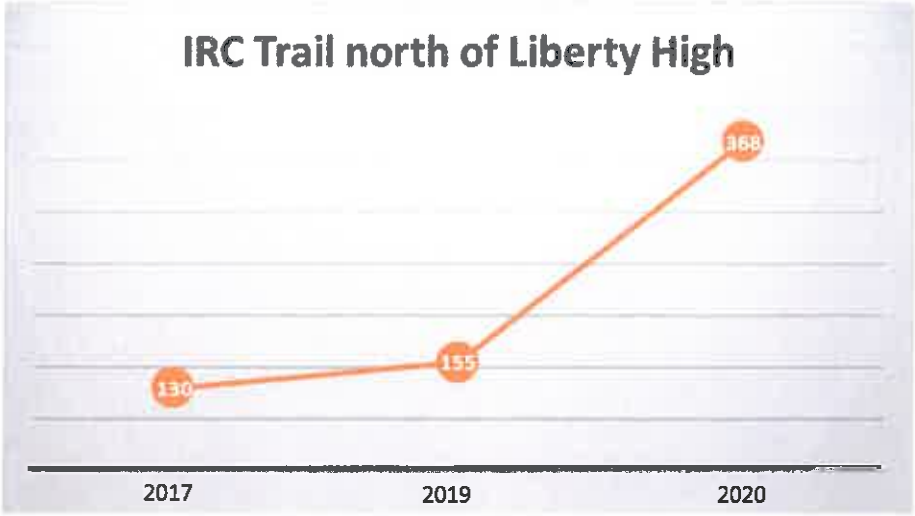


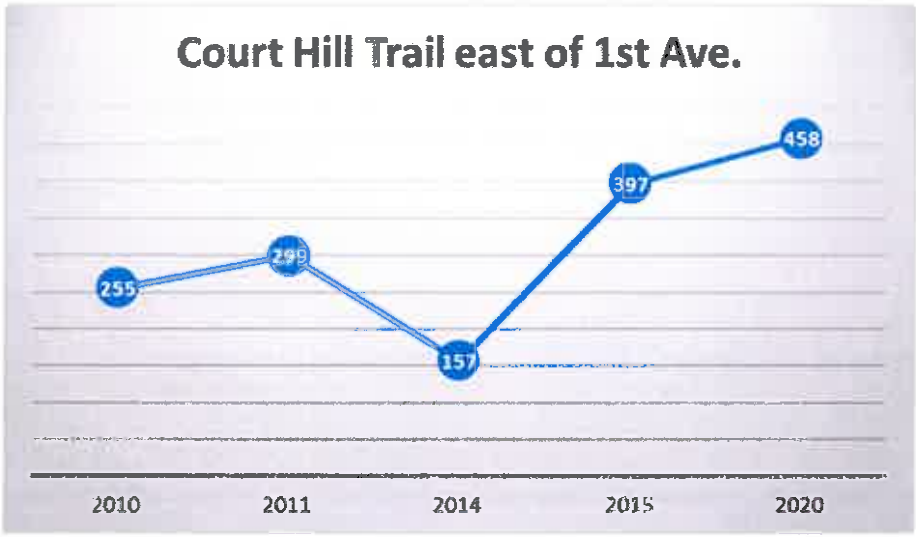


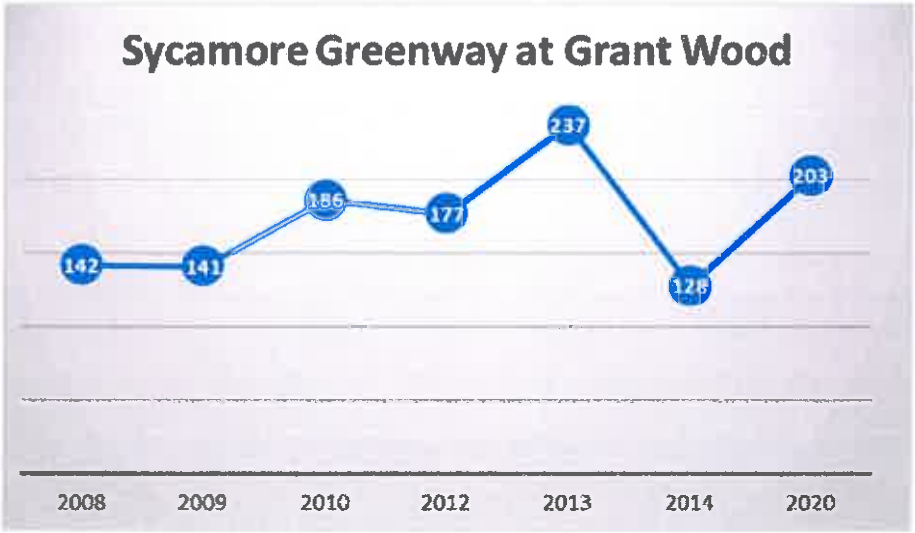




Two counts taken in 2020—spring and fall.


IRC Trail north of Liberty High
368
155
130
2017
2019
2020


Court Hill Trail east of 1st Ave.
458
397
299
255
157
2010
2011
2014
2015
2020


Sycamore Greenway at Grant Wood
237
203
186
177
142
141
128
2008
2009
2010
2012
2013
2014
2020

**Locations of 2020 Counts**