New Transportation Capacity Project Prioritization Process

Version 1.1
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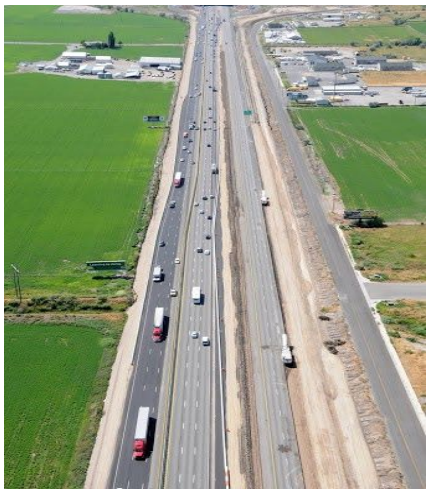
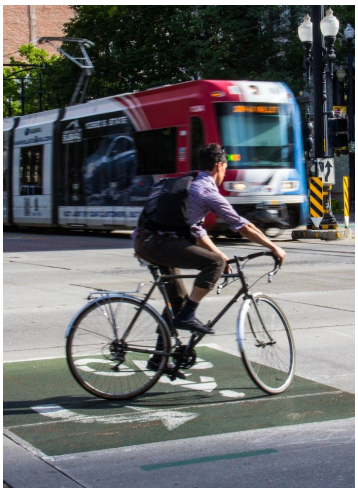




Purpose

The Utah Transportation Commission, in consultation with the Utah Department of Transportation (UDOT) and the state's Metropolitan Planning Organizations (MPOs), developed this written prioritization process to guide the decision-making process for programming Transportation Investment Fund (TIF) and Transit Transportation Investment Fund (TTIF) monies for transportation capacity projects.

This document summarizes how the Department's strategic initiatives are advanced through the prioritization process and describes the specific components of four decision support tools developed for this prioritization process. This includes the data and weighting used in each support tool model to rank projects.

Process for Updates

Data for measuring a transportation capacity project's impact on issues like health, economy, mobility, and connecting communities are constantly changing and improving. Acknowledging that in the future there may be a need to update UDOT's prioritization process to use the best data and methods available, the Utah Transportation Commission may update this document on an ongoing basis per the process outlined in Utah Administrative Code R-940-6.

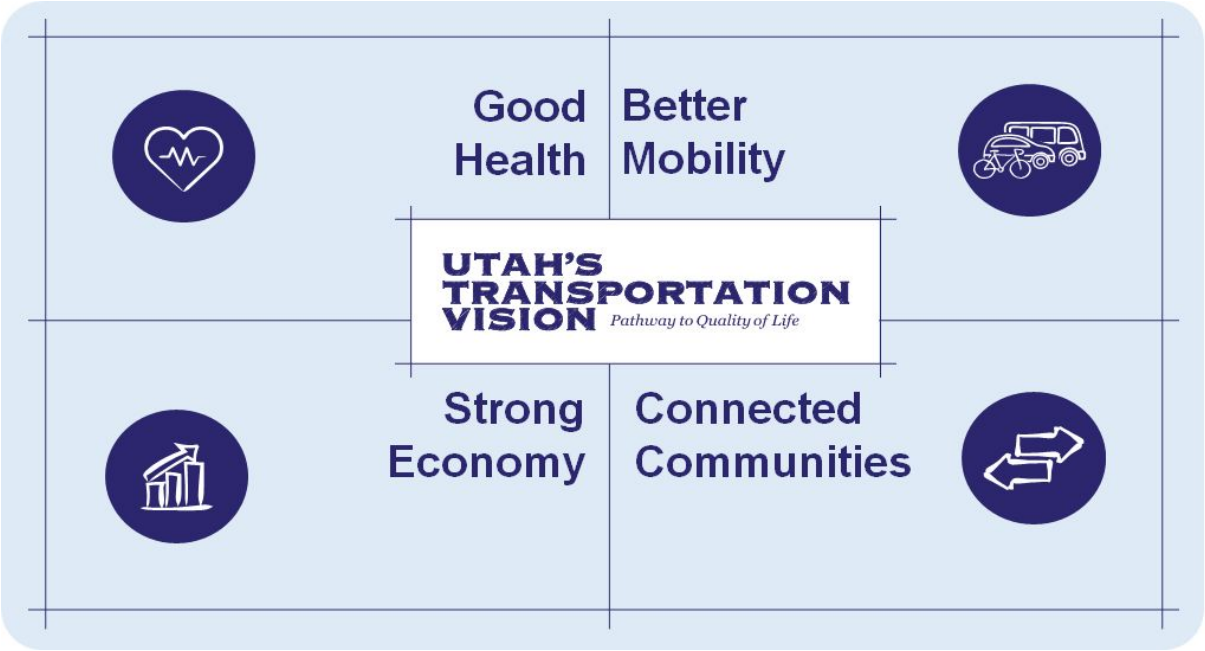
Model Framework

To align the Prioritization Model directly with the Department's Strategic Initiatives, also known as Utah's Transportation Vision (UVision), the Strategic Initiatives themselves serve as the framework for each decision support tool.

Utah's Transportation Vision Framework

In the 2018 legislative session, lawmakers passed a transportation bill that addressed funding mechanisms and transportation oversight to continue integrated, long-term planning. S.B. 136 required UDOT to develop statewide strategic initiatives across all modes of transportation.

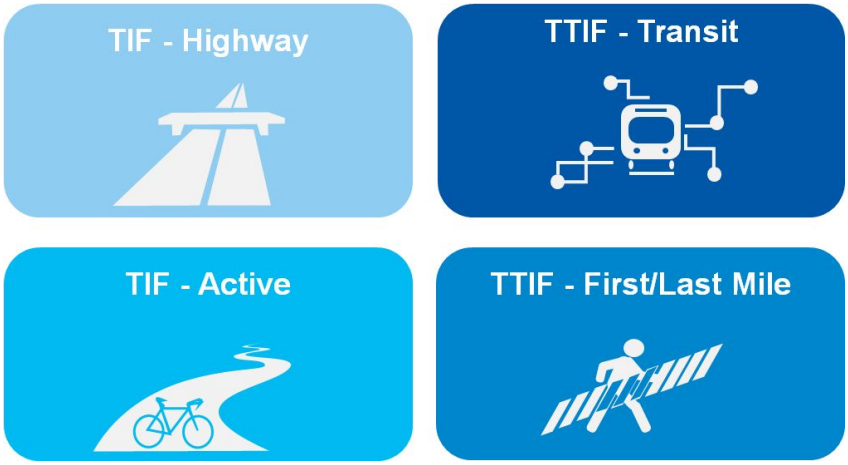
Recognizing that Utah's transportation system is owned, maintained and operated by many different entities, UDOT used a collaborative model to gather input to inform policy and convened a committee of various transportation stakeholders in order to develop a statewide vision for transportation. The committee formulated broad goals that function across modes and are scalable to local, regional, and statewide long-range transportation planning. At the center of these goals is maintaining a high quality of life. This framework is called Utah's Transportation Vision (UVision).



Four Decision Support Models

There are two capacity programs where the Prioritization Process and decision support tools are used; the Transportation Investment Fund (TIF) and Transit Transportation Investment Fund (TTIF). TIF funds can be used to fund highway capacity projects as well as stand alone active transportation projects. TTIF funds can be used to fund capital transit projects as well as active transportation projects with a direct connection to a transit station, also known as first & last mile projects.

Four decision support tools are used in the prioritization process; one for each eligible project type.



Each decision support tool uses the same structure for prioritizing projects, with the UVision framework serving as four outcome areas. Under each analysis outcome are key criteria developed through stakeholder engagement. These criteria remain consistent across all of the decision support tools.

The data and methodology to measure the criteria are different depending on the decision support tool. Additionally, the weighting criteria may also change. For example, the TIF Highway Model measures throughput as the daily volume on a segment of roadway, while the TTIF Transit model measures throughput as the added ridership to the transit system from the proposed project. The following sections of this document highlight the criteria and measures used in each decision support tool, as well as the weighting of each criterion.

TIF Highway Model

Good Health - 25% of Total Score

Criterion #1: Safety - 60% of Good Health Score

Objective

Reward projects with the potential to improve safety for all travelers.

Measures

UDOT U.S. Road Assessment Program (usRAP) Star Rating: This measure assesses road safety scores for each road segment. Ratings are assigned based on the presence or absence

of design and traffic control features known to be related to safety for both roadways and intersections. The ratings range from 1 to 5 stars. One-star roads have the fewest safety-related design and traffic operational features. Five-star roads have many safety-related design and traffic control features.

In the support tool, projects are scored based on the inverse of the star rating system. For example, a road segment that scored 5 stars on the usRAP scale (indicating a high safety rating) would score a 1 in the support tool. Doing this shows which projects have the greatest safety improvement needs.

UDOT Safety Index: This measures assess crash trends through the UDOT Safety Index dataset which provides a statewide comparison of UDOT roadways, taking into account the different traffic patterns and volumes experienced in urban and rural areas. The Safety Index is a combination of four, equally weighted safety analysis sub-scores: Crash Rate Score, Severe Crash Rate Score, Crashes per Mile Score, Severe Crashes per Mile Score. Projects are scored based on a 0 to 10 scale, with 10 representing the highest crash history conditions. In the support tool, projects with a higher safety index receive more points, because this indicates a greater need for safety improvements.

Data Source

UDOT Traffic and Safety Division

Criterion #2: Public Health - 20% of Good Health Score

Objective:

Reward projects that promote and support physical activity

Measures

Active Transportation Component Index: This measure evaluates whether active transportation components are reasonably integrated as part of the project's conceptual design and planning and, if so, whether those components are identified in a UDOT-approved active transportation plan. This measure is qualitatively developed by UDOT Region Planning Managers and UDOT Statewide Planning. Projects are scored as a 0 (no integrated active transportation components) or a 1 (reasonably integrated active transportation components that are consistent with relevant active transportation plan(s).)

Data Sources

UDOT Region Planning Managers and MPO Regional Transportation Plan or UDOT Long Range Transportation Plan.

Criterion #3: Environment - 20% of Good Health Score

Objective

Reward projects that enhance the natural environment

Measures

Environmental Integration Index: This measure evaluates whether a project reasonably includes components that enhance environmental conditions within a project area. Environmental components may include, but are not limited to: wildlife crossings, water management improvement, habitat development or protection, etc. Projects are scored as either a 0 (no environmental components) or 1 (reasonably related environmental components included). Project integration is evaluated by UDOT Region Planning Managers and UDOT Statewide Planning.

Data Source

UDOT Region Planning Managers

Strong Economy - 20% of Total Score

Criterion #1: Accessibility- 35% of Strong Economy Score

Objective

Reward projects located in closer proximity to educational facilities and recreational visitor destinations.

Measures

Education Proximity Score: This measure accounts for a project's proximity to higher education facilities. Projects are scored according to their proximity to all secondary education facilities weighted by the School Influence Factor and inversely weighted by distance. The School Influence Factor is calculated as school enrollment divided by the total population of Traffic Analysis Zones within 2 miles of the school.

Tourism Proximity Score: This measure accounts for a project's proximity to tourism facilities. Projects are scored according to their proximity to entrance gates to Utah State Parks, National Parks and National Recreation Areas, weighted by the Site Influence Factor and inversely weighted by distance. The Site Influence Factor is calculated as annual site visitation divided by the total population of Traffic Analysis Zones within 15 miles of the site.

Data Sources

Education - Utah Automatic Geographic Reference System (AGRC) Data and education enrollment data gathered from individual institutions and compiled by UDOT Planning.

Tourism - National Park and State Park gate locations digitized by UDOT planning consultant, visitation data from National Park Service Visitor Use Statistics and Utah Division of Natural Resource State Park Visitation.

Criterion #2 Transport Costs - 20% of Strong Economy Score

Objective

Reward projects that could reduce costs of transportation for freight.

Measure

Truck Volume Percentage: This measure reflects the percent of average annual daily traffic composed of heavy trucks, primarily commercial vehicles. Roadways with relatively higher truck volumes may reflect key economic connectivity corridors and represent candidate projects for improving freight efficiency and mobility throughout the state. Projects are scored based on total percentage.

Data Source

UDOT Transportation Monitoring Unit

Criterion #3 Economic Development - 45% of Strong Economy Score

Objective

Reward projects with connections to current future job centers and targeted economic improvement or development areas.

Measures

Current Employment: This measure accounts for current employment within the immediate geographic area of the project being prioritized. Current employment is measured as total jobs within traffic analysis zones that are within a ½ mile buffer of the project. Employment figures are drawn from the Utah DOT Statewide Travel Model. Projects are scored based on total employment.

Future Employment Growth: This measure accounts for the change in anticipated future employment within the immediate geographic area of the project being prioritized. Future employment is measured as the change in total jobs from the base year to the forecast year . Employment is measured within traffic analysis zones that are within a ½ mile buffer of the project. Employment figures are drawn from the Utah DOT Statewide Travel Model. Projects are scored based on total employment change.

Economic Designation Index: This measure accounts for whether the project intersects (within a ½ mile buffer) a designated economic development zone such as a Transportation Reinvestment Zones (TRZ) OR whether other outside funding sources are available for the project being prioritized. “Transportation Reinvestment Zone” means an area created by two or more public agencies by interlocal agreement to capture increased property or sales tax revenue generated by a transportation infrastructure project (Utah Code §11-13-103(22)). Projects are scored as either a 0 (no designation or outside funding source) or a 1 (TRZ designation or outside funding sources identified).

Data Sources

Current Employment - UDOT’s Utah Statewide Travel Demand Model (USTM) socio-economic input dataset

Future Employment - UDOT’s Utah Statewide Travel Demand Model (USTM) socio-economic input dataset

Transportation Reinvestment Zones - UDOT Planning will digitize any future TRZ locations

Other Fundings Sources - UDOT Region Planning Managers

Better Mobility - 40% of Total Score

Criterion #1: Travel Time- 55% of Better Mobility Score

Objective

Reward projects resulting in improvements in travel time and reliability.

Measures

Current Reliability: This measure represents two commonly used methods to assess travel time reliability. UDOT evaluates travel time using measured travel speeds and assigns roadways segments into four different classes of reliability. The Travel Time Index (TTI) measure is a ratio of a measured travel time during congestion to a measure of travel time required to make the same trip at free-flow speeds. For example, a TTI of 1.4 indicates a 20

minute free-flow trip requires 26 minutes during congestion. The Buffer Time Index (BTI) is a measure of how much time (over and above average travel time) a driver would have to budget to be 95 percent sure of arriving on time. For example, a BTI of 0.6 means that for a 20 minute average travel time, a traveler should budget an additional 12 minutes (20 minutes × 60 percent = 12 minutes) to ensure on-time arrival most of the time.

Project level reliability is scored differently for non-freeway and for freeway projects on a scale of 0 to 3 points, based on the following thresholds:

Freeway Project Types			
Points	**Classification**	**Travel Time Index**	**Buffer Time Index**
0	Fast and Reliable	TTI <= 1.4	BTI <= 0.6
2	Fast and Unreliable	TTI <= 1.4	BTI > 0.6
1	Slow and Reliable	TTI > 1.4	BTI <= 0.6
3	Slow and Unreliable	TTI >1.4	BTI > 0.6
Non-Freeway Project Types			
Points	**Classification**	**Travel Time Index**	**Buffer Time Index**
0	Fast and Reliable	TTI <= 1.4	BTI <= 0.9
2	Fast and Unreliable	TTI <= 1.4	BTI > 0.9
1	Slow and Reliable	TTI > 1.4	BTI <= 0.9
3	Slow and Unreliable	TTI > 1.4	BTI > 0.9

Current Delay: This measure reports the additional travel time experienced using measured travel time compared to an ideal travel time at free flow speeds. Measured travel time is reported as peak-hour travel time compared to free flow travel times. Projects are scored based on the total amount of delay per mile of the project extent.

Data Sources

UDOT Traffic and Operations HERE Probe Data

Criterion #2: Throughput - 30% of Better Mobility Score

Objective

Reward projects increasing the capacity of key corridors to move people and goods.

Measures

Current Volume: This measure assesses the total Annual Average Daily Traffic (AADT) on a roadway segment. AADT is calculated as the total annual traffic volume divided by 365 days. AADT is reported from the UDOT Statewide Travel Model for the current base year. Projects are scored based on total current AADT.

Future Volume: This measure evaluates the future Annual Average Daily Traffic (AADT) forecasted on a project facility. Projects are scored based on total future AADT for the forecast year in the UDOT Statewide Travel Model.

Data Sources

Existing Volume: UDOT Transportation Monitoring Unit Average Annual Daily Traffic (AADT)

Future Volume: UDOT's Utah Statewide Travel Demand Model (USTM) 2050 Forecast. Source depends on project location. See Appendix A for a map of Travel Model area boundaries.

Criterion #3: Risk and Resiliency - 15% of Better Mobility Score

Objective

Encourage projects that address identified risk, enhance resiliency, or provide redundant travel.

Measure

Redundancy Component Index: This measure evaluates whether or not a project adds redundancy to the highway network. Redundancy benefits are defined as additional travel lanes or route capacity that can reasonably be demonstrated to provide alternative travel options. Projects are scored as either a 0 (no identified redundancy benefits) or a 1 (reasonably related redundancy benefits).

Data Source

UDOT Statewide Planning and Region Planning Managers

Connected Communities - 15% of Total Score

Criterion #1: Connectivity - 35% of Connected Communities Score

Objective

Reward projects likely to meet the needs of future population centers.

Measures

Future Population Growth: This measure evaluates the anticipated change in population of a project area between a base year and a forecast year. Current and future population measures are calculated from the UDOT Statewide Travel Model for all traffic analysis zones within a ½ mile buffer of a project area. Projects are scored based on total forecast future population growth.

Data Sources

UDOT's Utah Statewide Travel Demand Model (USTM) 2050 Socio-economic Forecast. Source depends on location project.

Criterion #2: Land Use and Community - 35% of Connected Communities Score

Objective

Reward projects consistent with state, regional, and local plans, including solutions development planning efforts and access management agreements.

Measures

Plan Consistency Index: This measure assesses whether or not a project is broadly consistent with statewide transportation planning goals and regional or local transportation plans. Plan consistency is measured by a qualitative evaluation of the project's consistency with a Solutions Development process OR the presence of a UDOT approved Access Management Plan within the project extent. Projects are scored as either a 0 (no consistency or no approved Access Management Plan) or a 1 (consistent or approved Access Management Plan). Evaluations are performed by UDOT Region Planning Managers and UDOT Statewide Planning.

Data Sources

UDOT Region Planning Managers and Statewide Planning
Solutions Development process documentation
Access Management Plans

Criterion #3: Integrated Systems - 30% of Connected Communities Score

Objective

Reward projects with elements that improve multimodal access and connectivity.

Measures

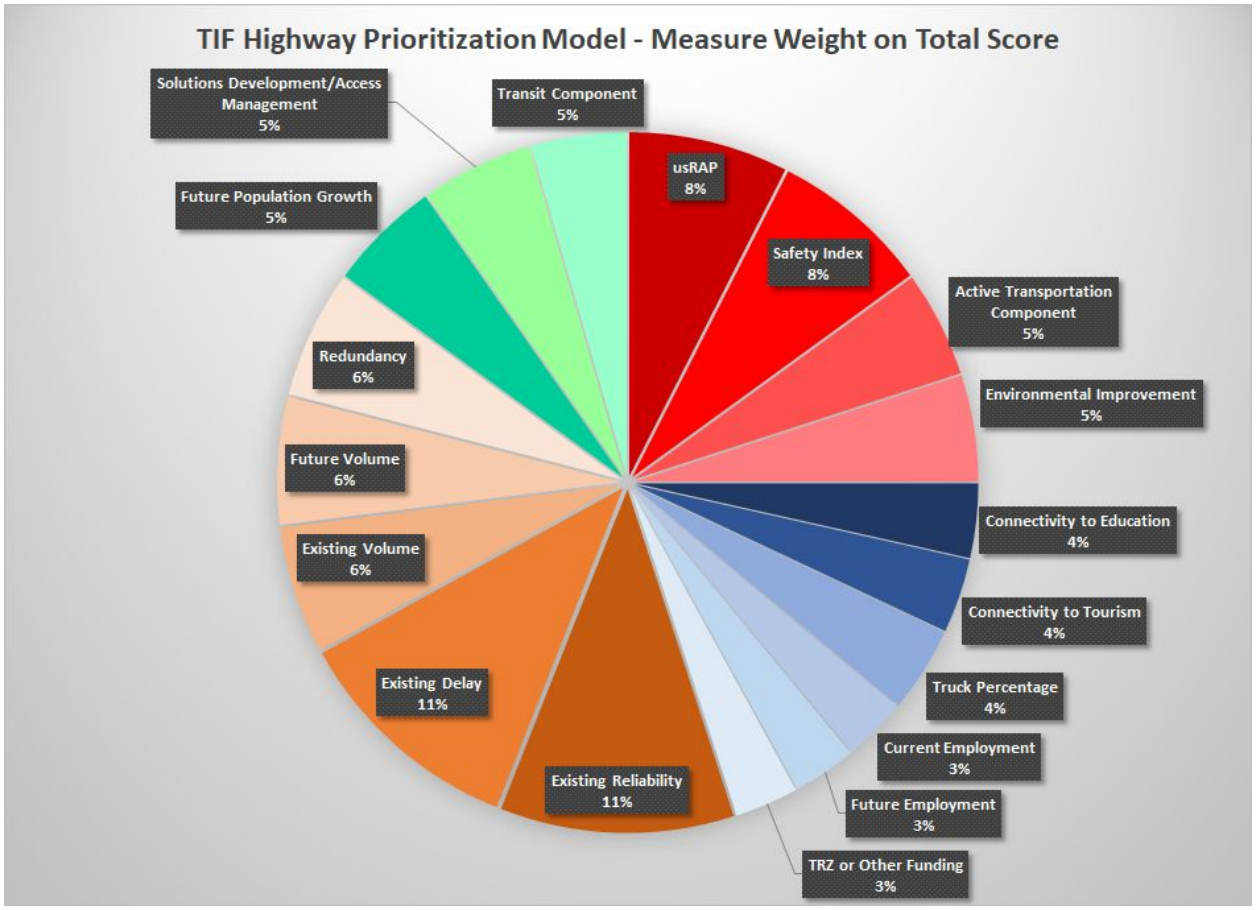
Multimodal Component Index: This measure evaluates whether the project reasonably includes a significant transit enhancement or improvement element integrated as part of the project's conceptual design and planning. Transit enhancements or improvements may include, but are not limited to: transit signal priority, exclusive transit lanes, ability for shoulder running transit, or other significant elements. Projects are scored as a 0 (no integrated transit components) or a 1 (significant integrated transit components.)

Data Sources

UDOT Region Planning Managers

Measure Weighting Overview

The chart below provides an overview of the weight of each measure used in the TIF Highway Model.



TTIF Transit Model

Good Health - 25% of Total Score

Criterion #1: Safety - 35% of Good Health Score

Objective

Reward projects with the potential to improve safety and security for all travelers.

Measure

Safety Component Index: This measures evaluates the extent that a transit project includes significant safety-related features and elements within design and operations. Information on safety-related components are provided by project sponsors and evaluated by UDOT Statewide Planning. Projects receive a score based on the number of reasonably related and significant safety components within three categories. Components may include, but are not limited to:

- Technology components that enhance passenger safety (e.g. crash avoidance systems, positive train control, signals, etc.)
- Facility safety and security components (e.g. lighting, security systems, cameras, crime prevention, etc.)
- Improvements to asset conditions or improvements that reduce risk of accidents (e.g. improvements to fleet age, maintenance capabilities, etc.)

Projects without safety components receive 0 points. Projects are scored based on the components listed above with 1 point assigned for each component. A maximum of 10 points are available in this measure.

Data Source

Sponsor Provided

Criterion #2: Public Health - 20% of Good Health Score

Objective:

Reward projects in areas with greater physical activity needs.

Measures

Physically Inactive: This measure assesses the percent of the population aged 18 years and older within Utah Small Area Health Statistical Areas that do not meet recommended physical

exercise guidelines. Guidelines for aerobic physical activity are defined as 150 minutes per week of moderate-intensity activity, or 75 minutes of vigorous-intensity activity, or an equivalent combination of moderate-vigorous intensity activity. Projects are scored based on the total percent of the population this is physically inactive (not meeting activity guidelines).

Data Sources

Utah's Public Health Data Resource, Public Health Indicator Based Information System (IBIS) Small Area Health Statistical Areas

Criterion #3: Environment - 45% of Good Health Score

Objective

Reward projects with air-quality mitigation needs.

Measure

Air Quality Designation: This measures evaluates the potential of a project to mitigate air quality issues and is measured by standardized national air quality designations. Projects are scored based on their current designation for either Ozone or PM 2.5 according to the Utah Division of Air Quality. Projects receive either 0, 1, or 2 points. 0 points are awarded for projects in areas with no current designation, 1 point is awarded for projects in areas in non-attainment, and 2 points are awarded for projects in maintenance areas. If a project extends into two or more designation areas, the area that the majority of the project extent falls within will be used for scoring purposes.

Data Source

Utah Division of Air Quality Non-Attainment Area Locator Data and UDOT Planning

Strong Economy - 20% of Total Score

Criterion #1: Accessibility - 40% of Strong Economy Score

Objective

Reward projects located in closer proximity to educational facilities, recreational visitor destinations, and economic destinations.

Measures

Economic Connectivity Index: This measure assesses the proximity of the project to key education and tourism destinations. Locations of educational institutions include accredited universities, colleges and technical schools (12-20) as well as public and private elementary and

high schools (K-12). Locations of tourism destinations include areas identified by the Utah State Office of Tourism. Projects are scored based on the total count of education and tourism destinations with 1 mile buffer of the project.

Data Sources

Education - Utah State Office of Education data digitized by UDOT Planning
Tourism - Utah State Office of Tourism Tourism data digitized by UDOT Planning

Criterion #2 Transport Costs - 20% of Strong Economy Score

Objective

Reward projects that could reduce costs of transportation

Measure

Commute Costs: This measure assesses the percentage of total household income that households working within a project area may pay in auto commuting costs. This measure is generated by determining the number of households working within a 3 mile buffer of a project. The U.S. Census LEHD dataset reports ranges of total miles between household residence and workplace locations. This measure assumes that commuting miles are driven (i.e. not using transit or other alternative modes) and applies the standard federal mileage reimbursement rate as determined by the Internal Revenue Service as a proxy for per-mile auto ownership costs. Median miles travelled are multiplied by the given mileage rate, and total commute costs are divided by median household income to determine the percent of household income spent on commute costs for households working within the project area. Projects are scored based on the calculated percentage from 0 to 100.

Data Source

U.S. Census Bureau Longitudinal Employer-Household Dynamics (LEHD) Program

Criterion #3 Economic Development - 40% of Strong Economy Score

Objective

Reward projects with connections to current future job centers and targeted economic improvement or development areas.

Measures

Current Employment: This measure accounts for current employment within the immediate geographic area of the project being prioritized. Current employment is measured as total jobs

within traffic analysis zones that are within a ½ mile buffer of the project. Employment figures are drawn from the Utah DOT Statewide Travel Model. Projects are scored based on total employment.

Future Employment Growth: This measure accounts for the change in anticipated future employment within the immediate geographic area of the project being prioritized. Future employment is measured as the change in total jobs from the base year to the forecast year . Employment is measured within traffic analysis zones that are within a ½ mile buffer of the project. Employment figures are drawn from the Utah DOT Statewide Travel Model. Projects are scored based on total employment change.

Economic Designation Index: This measure accounts for whether the project intersects (within a ½ mile buffer) a designated economic development zone such as a Transportation Reinvestment Zones (TRZs), Community Reinvestment Areas (CRAs), or Opportunity Zones (OZs). Transportation Reinvestment Zones are defined under Utah Code Title 11, Chapter 13. Community Reinvestment Areas including, Economic Development Areas (EDAs), Urban Renewal Areas (URAs) or Community Development Areas (CDAs), are defined under Utah Code Title 17C, Chapter 1. Opportunity Zones are defined by the Governor's Office of Economic Development and Utah Department of Workforce Services (DWS). Projects are scored as either a 0 (no designation or outside funding source) or a 1 (TRZ, URA, or CRA designation).

Data Sources

Current Employment - UDOT's Utah Statewide Travel Demand Model (USTM) socio-economic input dataset

Future Employment - UDOT's Utah Statewide Travel Demand Model (USTM) socio-economic input dataset

Economic Development Designations - Utah Automated Geographic Reference Center (AGRC). UDOT Planning will digitize any future locations.

Better Mobility

Criterion #1: Travel Time - 50% of Better Mobility Score

Objective

Reward projects resulting in improvements in travel time and reliability.

Measures

Reliability Component Index: This measure evaluates the extent to which a transit project includes significant features and elements within the project's design and operations that

improve travel time reliability. Information on reliability-related components are provided by project sponsors and evaluated by UDOT Statewide Planning. Projects receive a score based on the number of reasonably related and significant reliability components included in the project concept. Components may include, but are not limited to:

- Provides exclusive right of way or independent fixed guideway
- Includes transit signal prioritization or que jump technology
- Designed for 15 min headways or less
- Demonstrates maintenance improvements or fleet reliability improvements

Projects without reliability components receive 0 points. Projects are scored based on the above component definitions with 1 point assigned for each component included. A maximum of 5 points are available in this measure.

Data Sources

Sponsor Provided

Criterion #2: Throughput - 40% of Better Mobility Score

Objective

Reward projects increasing the capacity of the transit system.

Measures

System Ridership Change: This measure evaluates the potential of a transit project to increase overall system ridership. Projects sponsors provide forecasted ridership changes, using annual average boardings, from planning documents as available. Ridership estimates are provided for comparable systems and comparable opening day forecast years. Projects are scored based on the type of project according to the following guidelines:

- Service expansion: Estimated change in total system annual average daily boardings attributed to the project.
- Fleet expansion: Peak ridership added is equal to the number of vehicles added multiplied by current system annual average daily boardings per vehicle to produce estimated change in ridership through the addition of vehicles.
- Customer facilities: For parking facilities, peak ridership change will be assumed to be the total number of increased spaces multiplied by a peak-period utilization factor to produce estimated change in annual average daily boardings for routes served by the facility.
- Operational facilities: For maintenance facilities directly supporting new service, change in peak ridership for new routes will be scored.

Data Sources

Sponsor Provided

Criterion #3: Risk and Resiliency - 10% of Better Mobility Score

Objective

Encourage projects that address identified risk, enhance resilience, or provide redundant travel.

Measure

Risk and Redundancy: This measure assesses whether a project significantly addresses system risks or redundancy needs identified in state, regional, or local plans. Acceptable plans include, but are not limited to: Asset Management Plans, Safety Management Plans, Agency Safety Plans, Corridor Plans, and Regional or Local Area Plans. Information will be provided by project sponsors and evaluated by UDOT Statewide PLanning. Projects will be scored as either a 0 (no identified risk or redudancy need met) or 1 (identified risk or redundancy need significantly met.)

Data Source

Sponsor Provided

Connected Communities

Criterion #1: Connectivity - 50% of Connected Communities Score

Objective

Reward projects likely to meet the needs of future population centers and disadvantaged populations.

Measures

Future Population Growth: This measure accounts for the change in anticipated future population within the immediate geographic area of the project being prioritized. Future population is measured as the change in total population from the base year to the forecast year. Population is measured within traffic analysis zones that are within a ½ mile buffer of the project. Population figures are drawn from the Utah DOT Statewide Travel Model. Projects are scored based on total forecasted population change.

Low Income Household Accessibility: This measure evaluates the number of low-income households living within a ½ mile buffer of the project area. Low-income households are assumed to have greater accessibility needs and more likely to benefit from transit capacity

projects. Low-income households are defined as the percent of households with median incomes below the established Federal Poverty Level, as reported by the U.S. Census. The percent of low-income households is averaged across all census blocks within a ½ mile extent of the project. Projects are scored based on total percent of low-income households.

Data Sources

Future Population Growth - UDOT's Utah Statewide Travel Demand Model (USTM) 2050 Socio-economic Forecast.

Accessibility for Low Income Households - U.S. Census American Community Survey data

Criterion #2: Land Use and Community - 35% of Connected Communities Score

Objective

Reward projects consistent with state, regional, and local plans, including transit, corridor, housing and economic visions.

Measures

Plan Consistency: This measure assesses whether or not a project is broadly consistent with state, regional, or local transportation plans. Acceptable plans include, but are not limited to: whether the project is included in Phase 1 of the Unified Plan or is included in local general plans or results of Solutions Development efforts. Projects are scored as either a 0 (not identified or consistent with plans) or 1 (identified within or consistent with plans.)

Data Sources

Sponsor Provided

Criterion #3: Integrated Systems - 15% of Connected Communities Score

Objective

Reward projects with elements that improve multimodal access and connectivity.

Measures

Multimodal Connectivity Index: This measure evaluates whether a project includes active transportation, vehicle accessibility or other significant multimodal components with the project design, concept, or operations. Information is provided by project sponsors and evaluated by UDOT Statewide Planning. Projects are scored as either a 0 (no significantly related multimodal

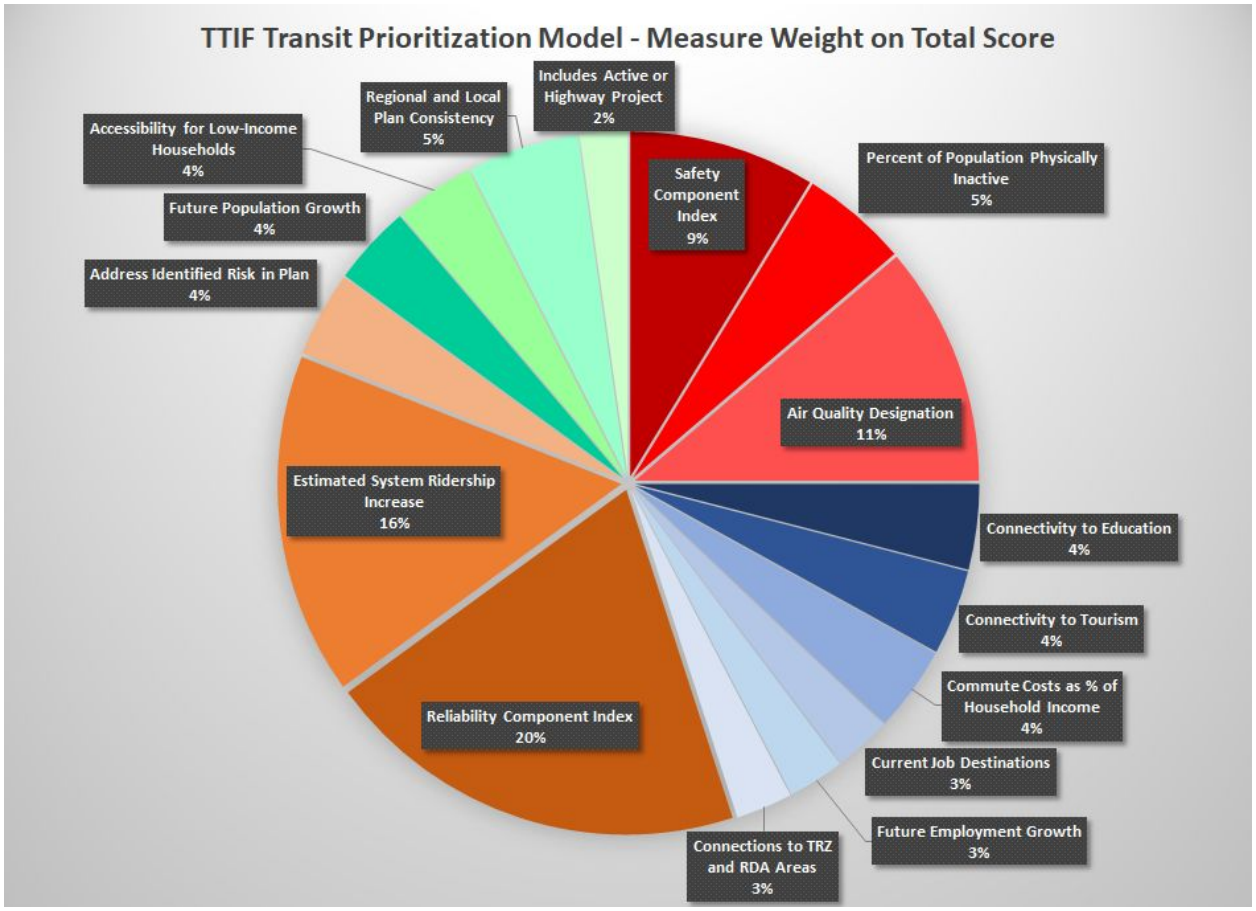
components) or 1 (significantly related active transportation, vehicle access or parking, or other multimodal improvements.)

Data Sources

Sponsor Provided

Measure Weighting Overview

The chart below provides an overview of the weight of each measure used in the TTIF Transit Model.



TIF Active Transportation Model

Good Health - 25% of Total Score

Criterion #1: Safety - 60% of Good Health Score

Objective

Reward projects with the potential to improve safety and security for all travelers.

Measure

Non-Motorized Safety: This measure evaluates non-motorized crash history within a 500 foot buffer of the project extent. UDOT safety databases will be used to pull 5 years of non-motorized crashes by type. Crash types will be normalized using UDOT's established Equivalent Property Damage Only scale to produce a total number of crashes along a project extent. Projects will be scored based on the total number of normalized non-motorized crashes.

Safety Component Index: This measures assess the extent of safety-related components included in the project design. Project concept, design, or construction information will be provided by sponsors and evaluated by UDOT Statewide Planning. Projects will be scored initially on a 1-3 point scale with additional points awarded for planned improvements to existing facilities. Projects will be scored on the following factors, based on safety improvement type:

- 3 points for related off-roadway separated multi-use paths (e.g., not immediately adjacent to roadway).
- 2 points for related on-roadway protected bicycle lane / sidewalk (e.g., not shared with vehicles).
- 1 point for on-roadway shared bicycle lane / sidewalk.
- 1 additional point for each significant safety improvements to existing facilities (e.g. curb bulb outs, pedestrian buffers, crossing treatments, etc.).

Data Source

5- year non-motorized crash trends - UDOT Traffic and Safety Crash Locations

Project Safety Component Index - Sponsor Provided

Criterion #2: Public Health - 20% of Good Health Score

Objective:

Reward projects in areas with greater physical activity needs.

Measures

Physically Inactive: This measure assesses the percentage of the population aged 18 years and older within Utah Small Area Health Statistical Areas that do not meet recommended physical exercise guidelines. Guidelines for aerobic physical activity are defined as 150 minutes per week of moderate-intensity activity, or 75 minutes of vigorous-intensity activity, or an equivalent combination of moderate-vigorous intensity activity. Projects are scored based on the total percentage of the population this is physically inactive (not meeting activity guidelines).

Data Sources

Utah's Public Health Data Resource, Public Health Indicator Based Information System (IBIS) Small Area Health Statistical Areas

Criterion #3: Environment - 20% of Good Health Score

Objective

Reward projects with air-quality mitigation needs and that enhance the natural environment.

Measure

Air Quality Designation: This measures evaluates the potential of a project to mitigate air quality issues and is measured by standardized national air quality designations. Projects are scored based on their current designation for either Ozone or PM 2.5 according to the Utah Division of Air Quality. Projects receive either 0, 1, or 2 points. 0 points are awarded for projects in areas with no current designation, 1 point is awarded for projects in areas in non-attainment, and 2 points are awarded for projects in maintenance areas. If a project extends into two or more designation areas, the area that the majority of the project extent falls within will be used for scoring purposes.

Environmental Feature Index: This measure evaluates whether a project includes environmental features, enhancement, improvements, or components that may provide environmental benefits and contribute to greater utilization. Project sponsors provide information on features included in concept plans or designs to be evaluated by UDOT Statewide PLanning. Projects will be scored as a 0 (no related environmental features) or 1 (project includes habitat, native landscaping, educational features or if the project includes streetscape plantings, aesthetic landscaping, etc.).

Data Source

Air Quality Designation - Utah Division of Air Quality Non-Attainment Area Locator Data and UDOT Planning

Environmental Feature Index - Sponsor Provided

Strong Economy - 20% of Total Score

Criterion #1: Accessibility - 40% of Strong Economy Score

Objective

Reward projects located in closer proximity to educational facilities and recreational visitor destinations.

Measures

Economic Connectivity Index: This measure assesses the proximity of the project to key education and tourism destinations. Locations of educational institutions include accredited universities, colleges and technical schools (12-20) as well as public and private elementary and high schools (K-12). Locations of tourism destinations include areas identified by the Utah State Office of Tourism. Projects are scored based on the total count of education and tourism destinations with a 1-mile buffer of the project.

Data Sources

Education - Utah State Office of Education data digitized by UDOT Planning
Tourism - Utah State Office of Tourism Tourism data digitized by UDOT Planning

Criterion #2 Transport Costs - 40% of Strong Economy Score

Objective

Reward projects that could reduce costs of transportation.

Measure

Workplace Location: This measure assesses the percent of all workers working within a 3 mile buffer of the project extent with both their primary residence and primary job location within that buffer. Data is compiled through the U.S. Census LEHD On-the-Map program and provides the total number of workers both living and working within the project and as a percentage of total workers. Projects are scored based on percentage of all workers both living and working within the project buffer area.

Data Source

U.S. Census Bureau Longitudinal Employer-Household Dynamics (LEHD) Program

Criterion #3 Economic Development - 20% of Strong Economy Score

Reward projects with connections to current future job centers and targeted economic improvement or development areas.

Measures

Current Employment: This measure accounts for current employment within the immediate geographic area of the project being prioritized. Current employment is measured as total jobs within traffic analysis zones that are adjacent within a ½ mile buffer of the project. Employment figures are drawn from the Utah DOT Statewide Travel Model. Projects are scored based on total employment.

Future Employment Growth: This measure accounts for the change in anticipated future employment within the immediate geographic area of the project being prioritized. Future employment is measured as the change in total jobs from the base year to the forecast year . Employment is measured within traffic analysis zones that are within a ½ mile buffer of the project. Employment figures are drawn from the Utah DOT Statewide Travel Model. Projects are scored based on total employment change.

Economic Designation Index: This measure accounts for whether the project intersects (within a ½ mile buffer) a designated economic development zone such as a Transportation Reinvestment Zones (TRZs), Community Reinvestment Areas (CRAs), or Opportunity Zones (OZs). Transportation Reinvestment Zones are defined under Utah Code Title 11, Chapter 13. Community Reinvestment Areas including, Economic Development Areas (EDAs), Urban Renewal Areas (URAs) or Community Development Areas (CDAs), are defined under Utah Code Title 17C, Chapter 1. Opportunity Zones are defined by the Governor's Office of Economic Development and Utah Department of Workforce Services (DWS). Projects are scored as either a 0 (no designation or outside funding source) or a 1 (TRZ, URA, or CRA designation).

Data Sources

Future Employment - UDOT's Utah Statewide Travel Demand Model (USTM) socio-economic input dataset

Local Redevelopment Areas - Utah Automated Geographic Reference Center (AGRC)
UDOT Planning will digitize any future TRZ locations.

Better Mobility - 40% of Total Score

Criterion #1: Travel Time - 30% of Better Mobility Score

Objective

Reward projects resulting in improvements in travel time and reliability.

Measures

Reliability Improvement: This measure evaluates the extent to which a project includes design components that improve travel time reliability by eliminating barriers to active transportation use. Information will be provided by project sponsors and evaluated by UDOT Statewide Planning. Projects will be scored based on the highest level of improvement included. Improvements to travel time reliability will be scored based on the following factors:

- 4 points for new dedicated use, separated travel lanes.
- 3 points for direct access or improved connections to destinations at project termini.
- 2 points elimination of crossings, over/underpasses, intersection improvements, bike/ped signal features, etc.
- 1 point direct connections into existing long-distance ped/bike network.
- 4 points for new dedicated use, separated travel lanes.

Data Sources

Sponsor Provided

Criterion #2: Throughput - 45% of Better Mobility Score

Objective

Reward projects within areas where active transport demand is highest and that are appropriate to the roadway type.

Measures

Annual Cyclist Rides: This measure evaluates available data on total ride counts along the roadway or project extent. Annual ride count data will be first evaluated using STRAVA data. If the sponsor provides additional data unique to the project, ride counts must be reasonably comparable to STRAVA data. For new facilities or active or first and last mile projects representing new construction, adjacent recreational and commuting routes will be identified and annual ride counts compiled for the new project type. Projects will be scored based on total annual ride counts.

Level of Traffic Stress: This measure assesses the level of traffic stress on the roadway or parallel facility of the project extent. This measure includes two elements. Roadway level of traffic stress is scored based on shoulder width, traffic volumes, and speed limits. Projects are defined as Low Stress or High Stress according to the following matrix:

Number of Lanes	Annual Daily Traffic	Speed Limit		
		< 25 mph	25-45 mph	> 45 mph
1 lane	0-1000	Low Stress	Low Stress	Low Stress
	3000 +	Low Stress	Low Stress	High Stress
2 lanes	0-1000	Low Stress	Low Stress	High Stress
	3000 +	Low Stress	High Stress	High Stress
2 + lanes	0-1000	Low Stress	High Stress	High Stress
	3000 +	High Stress	High Stress	High Stress

Projects are then evaluated based on the level of separation provided to active transportation users and evaluated in combination with the roadway level of stress. Projects that provide significant separation or protected bike lanes, sidewalks, or trails receive the highest seperation score. Spot improvements receive 1 point. Projects are scored based on the multiplication of the separation score and level of traffic stress score as shown in the following matrix:

Seperation Score	Points	Level of Traffic Stress		Final Score	
		Low	High	Low Stress	Other
Off-road, separated	4	x 1	x 2	4	8
On-road, protected	3	x 1	x 2	3	6
On-road, shared	2	x 2	x 1	4	2
Spot improvements	1	x 1	x 2	1	2

Data Sources

Total Annual Ride Count Estimate - STRAVA data

Level of Traffic Stress Score and Project Element Index - UDOT Mandli data, UDOT AADT data, UDOT Speed Limit data and sponsor provided information on project type

Criterion #3: Risk and Resiliency - 25% of Better Mobility Score

Objective

Reward projects that address identified system gaps or improve system redundancy.

Measure

Redundancy Index: This measure assesses whether a project provides additional redundancy to regional and local active transportation networks. Project sponsors provide information to be evaluated by UDOT Statewide Planning. Projects are scored either as a 0 (no additional redundancy) or 1 (project completes intra or inter-regional system gap or project develops a reasonably related alternative route.)

Data Source

Sponsor Provided

Connected Communities - 15% of Total Score

Criterion #1: Connectivity - 60% of Connected Communities Score

Objective

Reward projects in areas where workers are using non-auto modes to commute.

Measures

Alternative Commute: This measure evaluates the percentage of residents living within ½ mile buffer of the project extent that use non-single occupancy vehicles as their primary means to commute to work. Data is drawn from the U.S. Census at the census block level. Non-single occupancy vehicle use will be averaged across census blocks intersecting with the project buffer. Projects are scored based on total percentage.

Future Population Growth: This measure accounts for the change in anticipated future population within the immediate geographic area of the project being prioritized. Future population is measured as the change in total jobs from the base year to the forecast year . Population is measured within traffic analysis zones that are within a ½ mile buffer of the project. Population figures are drawn from the Utah DOT Statewide Travel Model. Projects are scored based on total population change between the base year and forecast year.

Low Income Household Accessibility: This measure evaluates the number of low-income households living within a ½ mile buffer of the project area. Low-income households are assumed to have greater accessibility needs and more likely to benefit from transit capacity

projects. Low-income households are defined as the percent of households with median incomes below the established Federal Poverty Level, as reported by the U.S. Census. The percent of low-income households is averaged across all census blocks within a ½ mile extent of the project. Projects are scored based on total percent of low-income households.

Data Sources

Non-Single Occupancy Vehicle Commute Share - U.S. Census American Community Survey data

Future Population Growth - UDOT's Utah Statewide Travel Demand Model (USTM) 2050 Socio-economic Forecast. Source depends on location project.

Accessibility for Low Income Households - U.S. Census American Community Survey data

Criterion #2: Land Use and Community - 25% of Connected Communities Score

Objective

Reward projects consistent with state, regional, and local plans, including corridor area plans and access management agreements.

Measures

Plan Consistency: This measure assesses whether or not a project is broadly consistent with state, regional, or local transportation plans. Acceptable plans include, but are not limited to: whether the project is included in Phase 1 of the Unified Plan or is included in local general plans or results of Solutions Development efforts. Projects are scored as either a 0 (not identified or consistent with plans) or 1 (identified within or consistent with plans.)

Data Sources

Sponsor Provided

Criterion #3: Integrated Systems - 15% of Connected Communities Score

Objective

Reward projects that provide connections to existing multi-modal transportation options.

Measures

Multimodal Connectivity: This measure evaluates the magnitude of connections the project provides to existing bike routes and transit stops. Transit stops include light rail, commuter rail, trolley, and bus rapid transit only. Bike routes and transit stops within a ½ mile buffer of the project will be counted. Projects are scored based on total count of multimodal connections.

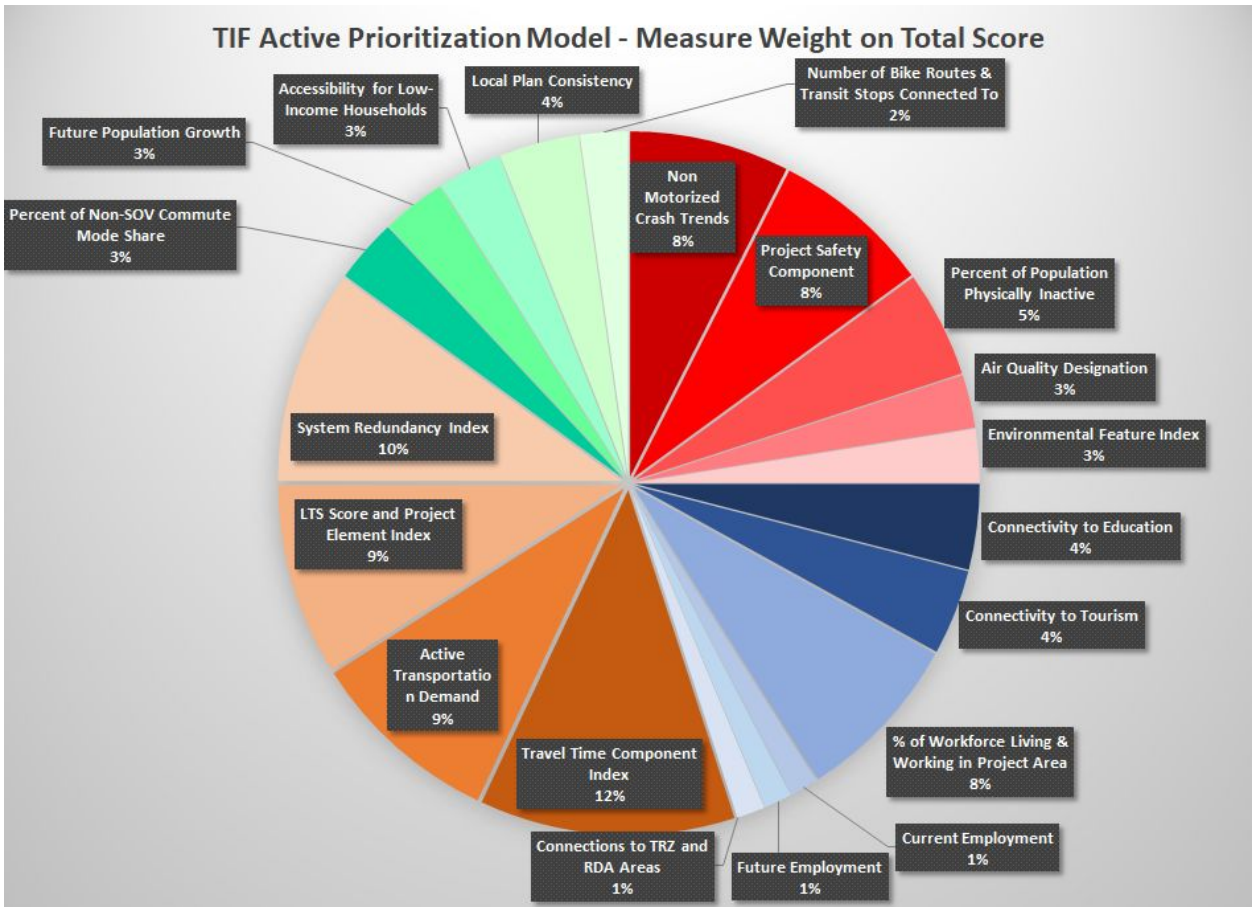
Data Sources

Bike Routes - Utah Statewide Centerlines data

Transit Stops - Transit District data

Measure Weighting Overview

The chart below provides an overview of the weight of each measure used in the TIF Active Model.



TTIF First & Last Mile Model

Good Health - 25% of Total Score

Criterion #1: Safety - 60% of Good Health Score

Objective

Reward projects with the potential to improve safety and security for all travelers.

Measure

Non-Motorized Safety: This measure evaluates non-motorized crash history within a 500 foot buffer of the project extent. UDOT safety databases will be used to pull 5 years of non-motorized crashes by type. Crash types will be normalized using UDOT's established Equivalent Property Damage Only scale to produce a total number of crashes along a project extent. Projects will be scored based on the total number of normalized non-motorized crashes.

Safety Component Index: This measure assesses the extent of safety-related components included in the project design. Project concept, design, or construction information will be provided by sponsors and evaluated by UDOT Statewide Planning. Projects will be scored initially on a 1-3 point scale with additional points awarded for planned improvements to existing facilities. Projects will be scored on the following factors, based on safety improvement type:

- 3 points for related off-roadway separated multi-use paths (e.g., not immediately adjacent to roadway).
- 2 points for related on-roadway protected bicycle lane / sidewalk (e.g., not shared with vehicles).
- 1 point for on-roadway shared bicycle lane / sidewalk.
- 1 additional point for each significant safety improvements to existing facilities (e.g. curb bulb outs, pedestrian buffers, crossing treatments, etc.).

Data Source

5- year non-motorized crash trends - UDOT Traffic and Safety Crash Locations

Project Safety Component Index - Sponsor Provided

Criterion #2: Public Health - 20% of Good Health Score

Objective:

Reward projects in areas with greater physical activity needs.

Measures

Physically Inactive: This measure assesses the percentage of the population aged 18 years and older within Utah Small Area Health Statistical Areas that do not meet recommended physical exercise guidelines. Guidelines for aerobic physical activity are defined as 150 minutes per week of moderate-intensity activity, or 75 minutes of vigorous-intensity activity, or an equivalent combination of moderate-vigorous intensity activity. Projects are scored based on the total percentage of the population this is physically inactive (not meeting activity guidelines).

Data Sources

Utah's Public Health Data Resource, Public Health Indicator Based Information System (IBIS) Small Area Health Statistical Areas

Criterion #3: Environment - 20% of Good Health Score

Objective

Reward projects with air-quality mitigation needs.

Measure

Air Quality Designation: This measures evaluates the potential of a project to mitigate air quality issues and is measured by standardized national air quality designations. Projects are scored based on their current designation for either Ozone or PM 2.5 according to the Utah Division of Air Quality. Projects receive either 0, 1, or 2 points. 0 points are awarded for projects in areas with no current designation, 1 point is awarded for projects in areas in non-attainment, and 2 points are awarded for projects in maintenance areas. If a project extends into two or more designation areas, the area that the majority of the project extent falls within will be used for scoring purposes.

Data Source

Utah Division of Air Quality Non-Attainment Area Locator Data and UDOT Planning

Strong Economy - 20% of Total Score

Criterion #1: Accessibility - 40% of Strong Economy Score

Objective

Reward projects located in closer proximity to educational facilities and recreational visitor destinations.

Measures

Economic Connectivity Index: This measure assesses the proximity of the project to key education and tourism destinations. Locations of educational institutions include accredited universities, colleges and technical schools (12-20) as well as public and private elementary and high schools (K-12). Locations of tourism destinations include areas identified by the Utah State Office of Tourism. Projects are scored based on the total count of education and tourism destinations with 1 mile buffer of the project.

Data Sources

Education - Utah State Office of Education data digitized by UDOT Planning
Tourism - Utah State Office of Tourism Tourism data digitized by UDOT Planning

Criterion #2 Transport Costs - 40% of Strong Economy Score

Objective

Reward projects that could reduce costs of transportation.

Measure

Workplace Location: This measure assesses the percent of all workers working within a 3-mile buffer of the project extent with both their primary residence and primary job location within that buffer. Data is compiled through the U.S. Census LEHD On-the-Map program and provides the total number of workers both living and working within the project and as a percentage of total workers. Projects are scored based on percentage of all workers both living and working within the project buffer area.

Data Source

U.S. Census Bureau Longitudinal Employer-Household Dynamics (LEHD) Program

Criterion #3 Economic Development - 20% of Strong Economy Score

Reward projects with connections to current future job centers and targeted economic improvement or development areas.

Measures

Future Employment Growth: This measure accounts for the change in anticipated future employment within the immediate geographic area of the project being prioritized. Future employment is measured as the change in total jobs from the base year to the forecast year . Employment is measured within traffic analysis zones that are adjacent within a ½ mile buffer of

the project. Employment figures are drawn from the Utah DOT Statewide Travel Model. Projects are scored based on total employment change.

Economic Designation Index: This measure accounts for whether the project intersects (within a ½ mile buffer) a designated economic development zone such as a Transportation Reinvestment Zones (TRZs), Community Reinvestment Areas (CRAs), or Opportunity Zones (OZs). Transportation Reinvestment Zones are defined under Utah Code Title 11, Chapter 13. Community Reinvestment Areas including, Economic Development Areas (EDAs), Urban Renewal Areas (URAs) or Community Development Areas (CDAs), are defined under Utah Code Title 17C, Chapter 1. Opportunity Zones are defined by the Governor's Office of Economic Development and Utah Department of Workforce Services (DWS). Projects are scored as either a 0 (no designation or outside funding source) or a 1 (TRZ, URA, or CRA designation).

Data Sources

Future Employment - UDOT's Utah Statewide Travel Demand Model (USTM) socio-economic input dataset

Local Redevelopment Areas - Utah Automated Geographic Reference Center (AGRC)
UDOT Planning will digitize any future TRZ locations.

Better Mobility - 40% of Total Score

Criterion #1: Travel Time - 30% of Better Mobility Score

Objective

Reward projects resulting in improvements in travel time and reliability.

Measures

Reliability Improvement: This measure evaluates the extent to which a project includes design components that improve travel time reliability by eliminating barriers and improving first and last mile experience. Information will be provided by project sponsors and evaluated by UDOT Statewide Planning. Projects will be scored based on the highest level of improvement included. Improvements to travel time reliability will be scored based on the following factors:

- 4 points for new dedicated use, separated travel lanes.
- 3 points for direct access or improved connections to destinations at project termini.
- 2 points elimination of crossings, over/underpasses, intersection improvements, bicycle and pedestrian signal features, etc.
- 1 point direct connections into existing transit facilities or bicycle and pedestrian networks.

Data Sources

Sponsor Provided

Criterion #2: Throughput - 45% of Better Mobility Score

Objective

Reward projects within areas where first/last mile connection demand is highest

Measures

Transit Ridership: This measure evaluates current ridership levels at the proximate connecting station and or route. Ridership information will be provided by project sponsors and evaluated by UDOT Statewide Planning. Projects will be scored based on the total level of connecting station or route ridership for the most current year or most current forecast year for new facilities.

Data Sources

Sponsor Provided

Criterion #3: Risk and Resiliency- 25% of Better Mobility Score

Objective

Reward projects that address identified system gaps or improve system redundancy.

Measure

- **Redundancy Index:** This measure assesses whether a project provides additional redundancy to regional and local active transportation networks. Project sponsors provide information to be evaluated by UDOT Statewide Planning. Projects are scored either as a 0 (no additional redundancy) or 1 (project completes intra or inter-regional system gap or project develops a reasonably related alternative route.)

Data Source

Sponsor Provided

Connected Communities - 15% of Total Score

Criterion #1: Connectivity - 60% of Connected Communities Score

Objective

Reward projects in areas where workers are using non-auto modes to commute.

Measures

Alternative Commute: This measure evaluates the percentage of residents living within a ½ mile buffer of the project extent that use non-single occupancy vehicles as their primary means to commute to work. Data is drawn from the U.S. Census at the census block level. Non-single occupancy vehicle use will be averaged across census blocks intersecting with the project buffer. Projects are scored based on total percentage.

Future Population Growth: This measure accounts for the change in anticipated future population within the immediate geographic area of the project being prioritized. Future population is measured as the change in total jobs from the base year to the forecast year . Population is measured within traffic analysis zones that are adjacent within a ½ mile buffer of the project. Population figures are drawn from the Utah DOT Statewide Travel Model. Projects are scored based on total population change between the base year and forecast year.

Low Income Household Accessibility: This measure evaluates the number of low-income households living within a ½ mile buffer of the project area. Low-income households are assumed to have greater accessibility needs and more likely to benefit from transit capacity projects. Low-income households are defined as the percent of households with median incomes below the established Federal Poverty Level, as reported by the U.S. Census. The percentage of low-income households is averaged across all census blocks within a ½ mile extent of the project. Projects are scored based on total percentage of low-income households.

Data Sources

Non-Single Occupancy Vehicle Commute Share - U.S. Census American Community Survey data

Future Population Growth - UDOT's Utah Statewide Travel Demand Model (USTM) 2050 Socio-economic Forecast. Source depends on location project.

Accessibility for Low Income Households - U.S. Census American Community Survey data

Criterion #2: Land Use and Community - 25% of Connected Communities Score

Objective

Reward projects consistent with state, regional, and local plans, including corridor area plans and access management agreements.

Measures

Plan Consistency: This measure assesses whether or not a project is broadly consistent with state, regional, or local transportation plans. Acceptable plans include, but are not limited to: whether the project is included in Phase 1 of the Unified Plan or is included in local general plans or results of Solutions Development efforts. Projects are scored as either a 0 (not identified or consistent with plans) or 1 (identified within or consistent with plans.)

Data Sources

Sponsor Provided

Criterion #3: Integrated Systems - 15% of Connected Communities Score

Objective

Reward projects that provide connections to existing multi-modal transportation options.

Measures

Multimodal Connectivity: This measures evaluates the magnitude of connections the project provides to existing bike routes and transit stops. Transit stops include light rail, commuter rail, trolley, and bus rapid transit only. Bike routes and transit stops within a ½ mile buffer of the project will be counted. Projects are scored based on total count of multimodal connections.

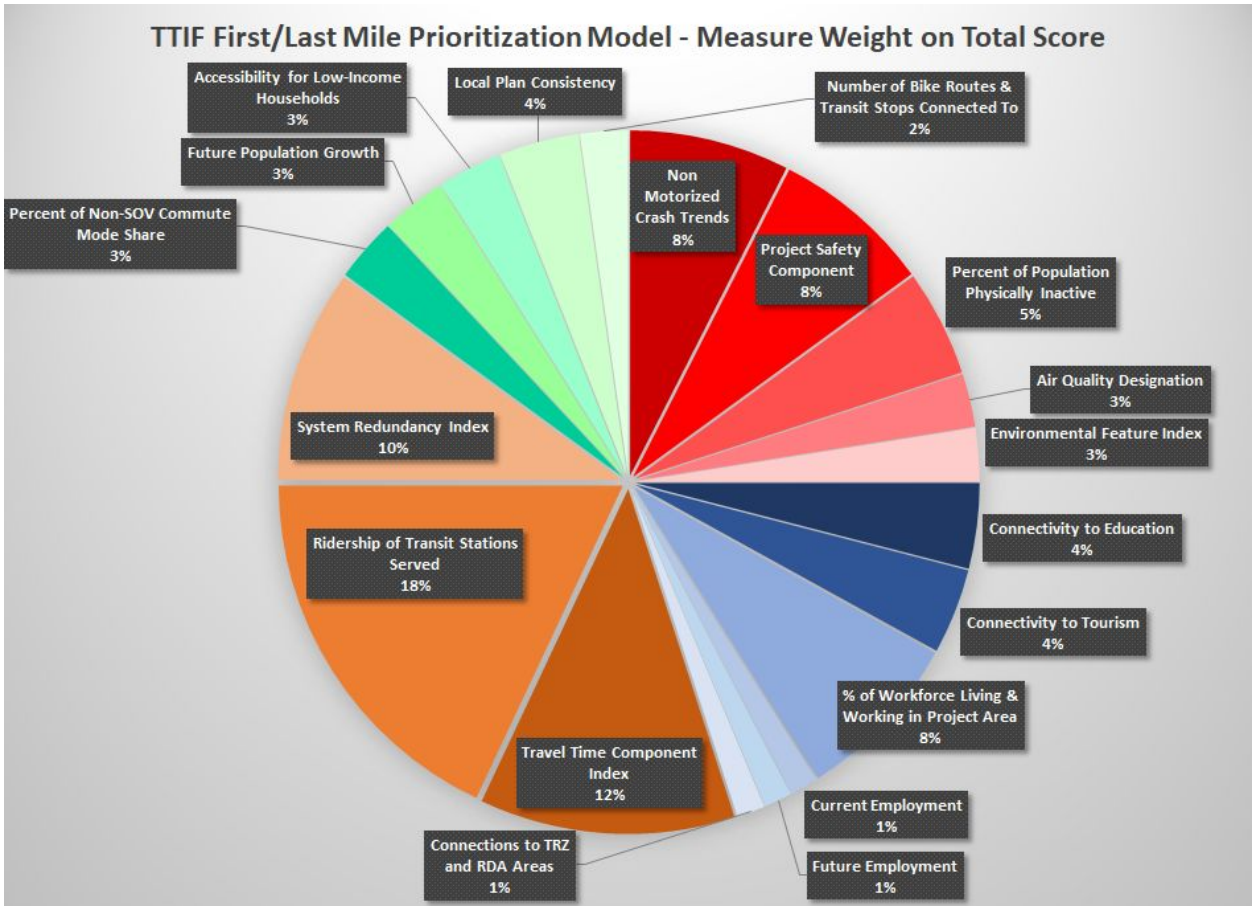
Data Sources

Bike Routes

Transit Stops - Transit District data

Measure Weighting Overview

The chart below provides an overview of the weight of each measure used in the TTIF First and Last Mile Model.


TTIF First/Last Mile Prioritization Model - Measure Weight on Total Score
Accessibility for Low-Income Households 3%
Local Plan Consistency 4%
Number of Bike Routes & Transit Stops Connected To 2%
Future Population Growth 3%
Non Motorized Crash Trends 8%
Project Safety Component 8%
Percent of Non-SOV Commute Mode Share 3%
Percent of Population Physically Inactive 5%
Air Quality Designation 3%
Environmental Feature Index 3%
System Redundancy Index 10%
Connectivity to Education 4%
Ridership of Transit Stations Served 18%
Connectivity to Tourism 4%
% of Workforce Living & Working in Project Area 8%
Travel Time Component Index 12%
Current Employment 1%
Connections to TRZ and RDA Areas 1%
Future Employment 1%

Appendix A: Travel Model Area Map