Active Transportation: Connectivity

Contents

Introduction: Connectivity is the Core of Active Transportation

Connectivity[1] is one of the five goals identified in WSDOT's 2021 *Active Transportation 2020 and Beyond plan*. Those goals include:

- *Connectivity*: Complete comfortable and efficient walking and biking networks so people can reach their destinations and other forms of transportation and have everyday access to physical activity.
- *Safety*: Eliminate deaths and serious injuries of people walking and rolling.
- *Opportunity*: Eliminate disparities in access to safe, healthy, active transportation connections for people and communities most dependent on walking, bicycling, and transit.
- *Participation*: Increase the percentage of everyday short trips made by walking or bicycling.
- *Partnership*: Collaborate and coordinate with local, regional, state, tribal, and federal partners to complete and improve the networks across boundaries.

As the connectivity goal indicates, it is about linking active transportation users to destinations. Legally, connections often already exist but many connections are functionally inadequate because they present safety concerns or physical barriers to active travelers of all ages and abilities.

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[1] Connectivity Definition (FHWA): A well-connected transportation network reduces the distances traveled to reach destinations, increases the options for routes of travel, and can facilitate walking and bicycling. Well-connected, multimodal networks are characterized by seamless bicycle and pedestrian infrastructure, direct routing, accessibility, few dead-ends, and few physical barriers. Increased levels of connectivity are associated with higher levels of physical activity from transportation. Connectivity via transportation networks can also improve health by increasing access to health care, goods and services, etc. Strategies to improve pedestrian and bicycle connectivity include:

- Short block lengths.
- Implementation of a Complete Streets policy.
- Bicycle/pedestrian outlets for cul-de-sacs and dead ends.
- Prioritization of multimodal access to public transportation.
- Safe and visible bicycle and pedestrian facilities (Oregon DOT 2010).

Definition Expansion (WSDOT goals): A highly connected, low traffic stress network improves access to jobs, services and other opportunities using lower-cost travel modes. Therefore, it increases the proportion of income available for non-travel use. More disposable income, in turn, has been associated with greater community economic vitality.

For drivers, facilities specifically designed for driving provide door to door connectivity on a network that minimizes travel time and inconvenience. The system promotes the use of speed to increase efficiency and the roadways are engineered to reduce the chances of a crash. Safety and comfort are further afforded by the vehicles themselves such that travel by motor vehicle is highly incentivized. Transportation is for everyone though, and a person walking, using a wheelchair, or riding a bicycle should have facilities specifically designed for their mode of travel so that they can complete travel to all desired destinations without fear for safety, concern that barriers will impede or delay their progress, or that travel will be indirect and inconvenient relative to their mode.

In order to claim that active transportation connectivity has been achieved we must address **safety**, network **efficiency**, and facility **suitability** for active travel.

- *Safety*: For WSDOT, addressing safety means eliminating traffic related fatalities and serious injuries by implementing engineering solutions that reduce potential impact forces (such as managing motorist's speed) and building facilities that separate users in time, space, or both. To this end, WSDOT staff are directed to advance the Safe System Approach.
- *Efficiency*: To achieve an efficient active transportation network, users must have relatively direct route options to reach destinations which often necessitates providing more frequent opportunities to cross roadways. Active travel requires more physical energy, more time, and more exposure to environmental conditions than motorized travel so the need to optimize route directness is a key component of network connectivity.
- *Suitability*: Active travelers, who have a choice of travel modes, must have accessible options and feel safe and invited to walk or bike along and across roadways. Facilities that are specifically designed for walking and biking under given roadway conditions must be provided for a network to be considered connected.

Revisiting the Active Transportation goals and adding in the elements required to achieve connectivity we can recast connectivity as an umbrella goal. If we improve connectivity with a focus on safety, efficiency, and suitability, we will create more opportunities for more people to engage in safe trip making, and people will respond to that by making more active trips. Figure 1 captures the idea that "connectivity for all" can function as an organizing principle that captures all of the Active Transportation goals.

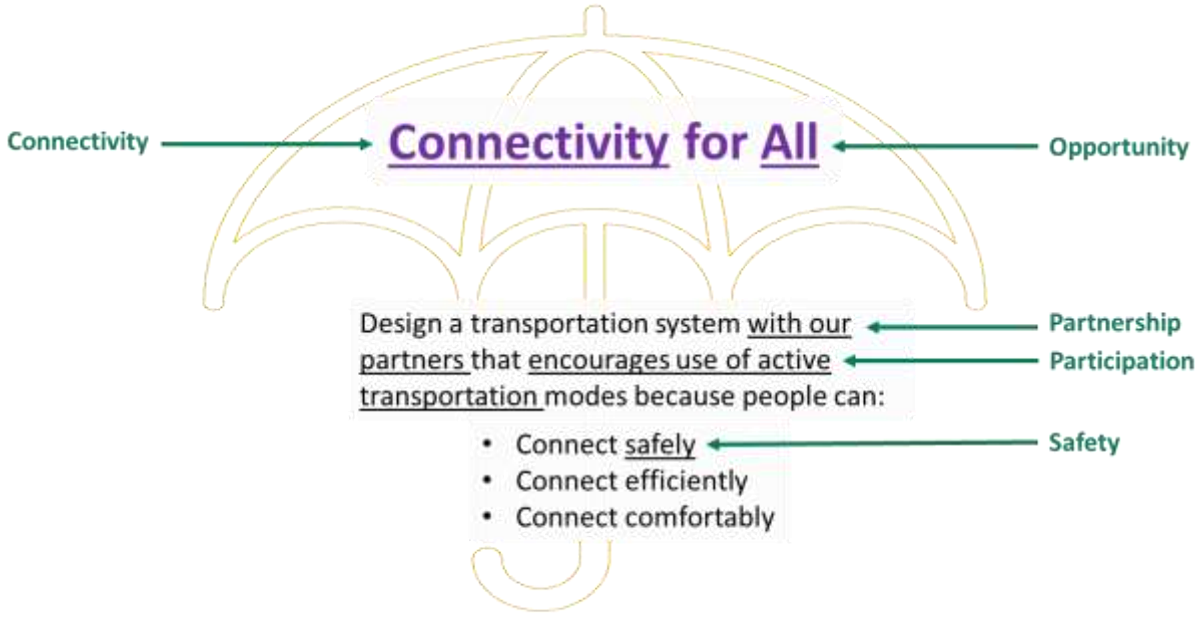


Figure 1. Because achieving connectivity requires addressing safety and access, "Connectivity for all" serves as an organizing principle that captures the five WSDOT Active Transportation Plan goals.

Transportation Networks: Active Travel Compared to Driving

Unlike active travelers, drivers often benefit from a more indirect system of higher speed arterials and collectors (functional classes) to reduce travel time. Active travelers do not benefit from functional class changes. Roadways such as collectors and arterials make active travel trips: less appealing, potentially less safe, and often more indirect. Where the driving network requires such facilities, the associated active transportation facilities need to offer greater separation and more protection during crossings to make them work well for people outside of a car. Ideally, alternative routes that offer more direct connections should be sought.

Arterials and major collectors use speed and access management to benefit drivers and driver networks are relatively level and well maintained.
By contrast, active travel networks are less well suited to their audience.

Many routes in the driving network emphasize access management (ex., increased distance between traffic signals, wide unprotected crossings due to turn pockets, and non-traversable medians) for increased efficiency. This emphasis often forces active travelers to take long

detours to complete a trip. Research indicates that active travelers will avoid trip detours even if the detour route offers safer facilities. Bicyclists will only go out go about 25% out of their way to find better facilities and pedestrians will only go a few hundred feet (Broach, 2016 [2] and AASHTO, 2021[3]). As a result, active travelers will often make dangerous roadway crossing choices or travel along roads that lack appropriate facilities.

Driving network facilities are generally smooth with the exception of the occasional speed hump or speed table to address a specific speed management need. This makes driving comfortable and supports higher driving speeds. Pedestrian sidewalk networks are more likely to be interrupted by curb cuts that that make it more convenient for drivers to enter private property and maintain a higher speed when doing so. Curb cuts can decrease the level of service experience by people with disabilities on a facility otherwise designed for ADA access. Using sidewalk buffers and bend-out/bend-in sidewalks at the driveway are two ways to provide property access while maintaining a level sidewalk path. Rolled curbs at driveways also accomplish this while also calming traffic that enters/exits driveways.

Driver networks are relatively well maintained. In cities, snowplows, and street sweepers maintain roads, but may not focus on dedicated bicycle facilities and sidewalks. Snow is sometimes intentionally stored on pedestrian and bicycle facilities. Sidewalks may exhibit heaving and cracking that present challenges for some pedestrians, and vegetation can reduce the useable area of a sidewalk. Sweeping is less frequent for county roads and highways, and snow plowing focuses on drive lanes. Because sweeping is infrequent, debris tends to accumulate on road shoulders where pedestrians and bicyclists may operate. Bicyclists, in particular, may need to suddenly avoid a collection of debris or ride very close to the fog line, both of which put them closer to high-speed traffic. Outside of cities, shared use paths can be great facilities for reaching more distant destinations, but these rarely have regular maintenance plans or funding. Debris accumulation, encroaching vegetation, cracking, and root heaving on such facilities may induce potential users to follow road shoulders instead.

[2] Broach, J.P. 2016. Travel Mode Choice Framework Incorporating Realistic Bike and Walk Routes. Portland State University.

[3] American Association of State Highway and Transportation Officials (AASHTO), Washington, DC, United States. 2021. Guide for the Planning, Design, and Operation of Pedestrian Facilities, 2nd Edition.

Understanding Connectivity

Level of Traffic Stress & Low Stress Routes

Connectivity requires low stress routes which comprise a combination of appropriate traffic conditions AND appropriate facilities for active travel.

To be considered a complete, active transportation network elements must offer safe and appropriate facilities for pedestrians and bicyclists. WSDOT recognizes Level of Traffic Stress (LTS) as a tool used to measure appropriateness of linear active transportation facilities. Effective connectivity is improved where LTS is lower since a high traffic stress connection could be seen as a lack of a connection depending on a user's tolerance or physical limitations. A low LTS indicates a facility will work for active travelers of all, or most, ages and abilities. Higher LTS scores equate to situations where the Safe System Approach has not been fully implemented and therefore an active transportation network gap exists.

LTS is related to both systemic safety characteristics and user experience for vulnerable users of a roadway. Subjectively, LTS provides a relative measure of a user's experience on a given facility. Objectively, LTS looks at roadway characteristics. At a high level, LTS considers the posted speed, number of lanes, vehicle volumes, and the presence of bike lanes and sidewalks. A more detailed LTS assessment could consider other factors such as the sidewalk width, bike lane type, commercial driveway activity, etc.

In principle, LTS can be measured for crossings as well as linear facilities. However, the way LTS is measured can be difficult to apply at crossings where there are many features that can contribute to the effectiveness of a given crossing. Instead of LTS, WSDOT identified six functional characteristics for crossings (WSDOT Design Manual, Chapter 1310) that underly LTS principles. Intersections can be made suitable for all ages and abilities by:

- Decreasing pedestrian/bicyclist exposure to points of conflict with motor vehicle traffic.
- Decreasing motor vehicle operating speed.
- Increasing pedestrian/bicyclist user conspicuity.
- Increasing the predictability of movements of different user groups through the intersection.
- Increasing separation in space between motorists and pedestrians/bicyclists.
- Increasing separation in time between motorists and pedestrians/bicyclists.

For simplicity, this guidance will refer to low LTS linear facilities, combined with intersections that have not addressed the six functional characteristics, as **Low Stress Routes**.

Route Directness

Connectivity is achieved when active travelers can complete relatively direct trips along low stress routes.

To be considered a complete network, users must have relatively direct route options to reach destinations. The Route Directness Index (RDI) is a tool that measures route directness by comparing the direct (crow flies) distance between destinations to the distance imposed by the roads and crossings available on the network. In many cases, a walking or biking trip can only be accomplished with a significant amount of back tracking because of limited availability of crossings that have implemented one or more of the six functional characteristics discuss above. A RDI of one means active travelers have a direct route between destinations. Connectivity is better when RDI values are closer to one.

Good connectivity is difficult to achieve with interchanges.

Route directness and low stress routes are related. If route directness is good, but low stress routes are not available, the network has a gap and vice versa. More substantial network gaps exist where there is both a lack of low stress routes and poor route directness. An example of this is a freeway interchange. Often interchanges are the only way across a limited access facility. They are usually too widely spaced to support efficient active travel between many destinations (poor route directness), and often lack active transportation facilities that work for all ages and abilities (lack of low stress routes).

Context

There are two context types relevant to active transportation investments that were identified in WSDOT's ATP: Population Centers and Outside of Population Centers.

Population centers are WSDOT's primary focus for active transportation facilities and local planning (when available) is our best resource for determining what active travel improvements are needed for our highways in those centers.

The ATP defined population centers as cities, towns, and Census Designated Places and indicated that population centers are WSDOT's primary focus for active transportation network development. Population centers are now also similarly defined in statute (HB 1853). For state highways, the emphasis on population centers is made even more apparent under the state's Complete Streets directive. Potential active travel demand in population centers is high because there are destinations within walking and biking distances. A complete population center active transportation network is a dense network of safe and comfortable facilities that work for all ages and abilities. WSDOT's facilities are only one element in such a network, but our roads may be some of the most challenging to improve because they generally accommodate higher volumes of through-traffic travelling at higher speeds. Regional and local planning is a key input for informing active transportation needs on state routes in population centers. One caution is that local planning may avoid recommending improvements on a non-local facility. For example, a local jurisdiction may think that a midblock crossing over a WSDOT highway or protected bike lanes along the highway are improvement types that are not up for discussion. As jurisdictions learn about WSDOT's Complete Streets emphasis, jurisdictions may be more inclined to ask for active transportation facilities along and across state routes. However, it is critical for WSDOT planners to think about logical origins and destinations relative to a state highway that is within a network, if it appears that local planning efforts have not done so.

For locations outside of population centers, WSDOT's has two general goals: connecting closely spaced population centers to each other with low stress routes, and providing lower-cost, systemic safety improvements for longer distance active travelers.

Outside of population centers, focus on connecting adjacent population centers with low stress routes, and otherwise use systemic safety tools such as shoulders and warning beacons to ensure that the needs of longer distance bicycle travelers are considered.

Outside of population centers, state facilities are high-speed and therefore lack low stress routes. Destinations are generally few in number so route directness is less of a concern. Where

population centers are close to each other, people may walk or bike between them to access jobs, schools, and services so it is important to connect these communities with facilities, such as shared use paths, that work for all ages and abilities. Where the distances between population centers are greater than 7-10[4] miles, systemic safety tools such as shoulders are more likely to be the focus. Other tools such as warning beacons that automatically detect bicyclists can be considered where site lines are poor.

Local and regional planning should be a primary resource when considering needs outside of population centers. Crowd sourced data tools such as the Strava Global Heat Map may indicate potential demand, but it won't capture the many people who do not upload trip data. Farm workers walking or using bicycles to reach a job site are one example of users whose trips are not recorded and who may need facilities to reach employment. Understanding those kinds of needs requires close coordination with local jurisdiction staff.

Equity

Considering equity for active travelers often means looking thinking outside the perspectives shared by habitual drivers.

For people whose primary means of transport is the automobile, it can be hard to understand the network needs of many active travelers. Habitual drivers are also pedestrians, but they are more likely to drive to locations where pedestrian activity is well supported rather than walking from their home to destinations. A driver may perceive actions such as roadway crossings outside of designated locations, or travel along high-speed roads as poor travel choices, but these actions may occur because other network options are equally challenging or present undo travel burdens. The availability of affordable housing may also force many people to live outside of developed active transportation networks. These people may lack access to a vehicle and transit options may be limited, making travel along high-speed roadways a necessity.

[4] 10 miles considers a 20-mph commute speed of an e-bike producing a commute time of about 30 minutes each way. Marchetti, C., 1994, found that humans across generations have tolerated about one hour of total commute time per day. Marchetti, C., 1994, "Anthropological invariants in travel behavior" (PDF). Technological Forecasting and Social Change. 47 (1): 75–88. doi:10.1016/0040-1625(94)90041-8.

Historical networks shed light on barriers to active transportation connectivity and may suggest the need to restore critical connections.

When considering active transportation network connectivity, the historical context should also be explored. Past connections may have been severed by state facilities, or traffic conditions may have changed considerably. Old maps may reveal logical active transportation network links that no longer connect. There may be a need to correct for the effects of past infrastructure decisions on active transportation connectivity. It is important to ensure that underserved communities have safe and efficient access to jobs, food, health services, schools, and other resources.

Measuring and Evaluating Connectivity

"Well-connected, multimodal networks are characterized by seamless bicycle and pedestrian infrastructure, direct routing, accessibility, few dead-ends, and few physical barriers."—USDOT

In Promoting Connectivity, the US Department of Transportation indicates that a "well-connected transportation network reduces the distances traveled to reach destinations, increases the options for routes of travel, and can facilitate walking and bicycling. Well-connected, multimodal networks are characterized by seamless bicycle and pedestrian infrastructure, direct routing, accessibility, few dead-ends, and few physical barriers."

Connectivity can be measured in several different ways. FHWA's 2018 publication, *Measuring Multimodal Network Connectivity* outlines a variety of methods for doing so. Two of the measures described in that guidance, LTS and RDI, have already been discussed. LTS describes the quality of an existing connection, such that a low-quality facility essentially does not contribute to connectivity. Measuring RDI, helps us understand whether bicycle and pedestrian facilities allow users to travel throughout a community via direct routes. Depending on the inputs used to determine RDI, it will measure how well users can access key destinations. Together, the two measures tell us a lot about a network's connectivity. The FHWA guide describes other measures as well such as network completeness, though the various methods overlap with LTS and RDI in a number of ways.

Existing level of traffic stress and route directness data are useful for high-level planning, but we lack a ready source for most of the detailed data needed for project and corridor planning.

Publicly available data layers for linear LTS and RDI exist that evaluate WSDOT's highways. However, there is no dataset to indicate whether an intersection meets the six functional characteristics discussed in Design Manual 1310. The LTS and RDI data layers are useful when asking high level questions (for example, to investigate associations between statewide crash data and linear LTS). However, GIS-based data is limited by the available data inputs. Linear LTS is based on posted speed, number of travel lanes, traffic volumes and the presence of sidewalks and bike lanes. It is unable to capture operating speed, turn radii, conditions at commercial driveways, and other factors that directly influence linear LTS. The GIS-based RDI data also has limitations as it does not capture all of the available crossing opportunities or compute RDI between key destinations.

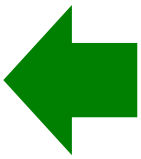
Crossing spacing guidance as a function of context is coming soon!

Because RDI is cumbersome to work with for a corridor study or at a project level, and because route directness must be addressed as part of Complete Streets, WSDOT is developing crossing spacing guidance. This guidance will help determine the frequency of low stress crossings that should be provided based on context. Even with that guidance, we are unlikely to have a data layer indicating where low stress crossing have been developed in the near future. Hands-on analysis of a location is usually necessary to fully understand the availability and quality of existing connections.

Connectivity for State Planning Studies

For state facility planning studies within population centers, the following guidance will aid in understanding active transportation connectivity:

- Develop a thorough understanding of the active travel network.
- Identify local network origins and destinations.
- Use local planning documents as a primary resource.
- Talk to active transportation users directly.



Understanding a state facilities role in a network requires looking at the full network.

It is important to understand the various elements in a population center active travel network in order to recognize the role state facilities play in that network. In most cases this means knowing where the key origins and destinations are located and how the roads, bike lanes, sidewalks, paths, and crossings connect between them. Local planning documents should be considered the primary resource for this work. However, robust information on the local active transportation network may not be readily available. In such cases, WSDOT can convene interested parties to develop a more complete understanding of where people are going, and where they want to go. While the full network should be kept in mind, WSDOT's work can focus on how the state's facilities function or could function within the network.

When trying to understand a network, use the network as a pedestrian, bicyclist or transit rider.

Beyond local planning documents, looking at online maps and street views can be helpful, but real understanding often requires active testing of a network as a pedestrian, bicyclist, and/or transit user. When doing so, it is important to choose routes that link transportation disadvantaged neighborhoods with key destinations.

Engage regular users of a network and ask if different days or times present different challenges for active travelers.

In addition to trying a network themselves as an active traveler, the more a planner can engage directly with regular active travel users of the network the better understanding they will have. A planner will only be able to sample a network and will therefore miss information that shows up on certain days or at different times. A network may function very differently at night or during rush hour. For schools, a network may present few concerns unless observed during parent pickup and drop off. Seek engagement with users who have mobility limitations and consider less conventional outreach (ex., poster boards outside grocery stores where people frequently walk or bike) to ensure active travelers are engaged. One avenue for outreach is engaging with the contacts identified in the *Coordinated Transit—Human Services Transportation Plan* (HSTP)

that Metropolitan Transportation Organizations/Regional Transportation Planning Organizations develop once every four years.

Use the outreach channels identified for Human Services Transportation Plans. The contacts providing input to those plans may be better attuned to active travel needs than the usual transportation contacts.

The HSTP itself may have valuable information about active transportation gaps, but the contacts are a key resource. Often the outreach performed for these plans includes many organizations that serve people with transportation disadvantages that do not otherwise engage in transportation conversations with public works departments.

Recreational use of active transportation facilities is an important consideration but ensure that input from recreational users is not overweighted relative to those who rely on the facilities for everyday trips.

From an equity perspective, contacts collected from HSTP development efforts (or similar) are of primary interest, but other groups and resources could add useful information. Some of these include: bicycle clubs, walking groups, and heatmaps (e.g., Strava Heatmap--see guidance in appendix A). When reaching out to recreational users or resources that capture recreational use, it is important to consider the priority recreational uses should be given. Some recreational assets are key components of the overall active transportation network, serving a full range of trip purposes. And, calling attention to recreational uses and assets in a planning process may generate strong public participation. However, those participants may be more representative of those who enjoy, rather than rely on, active modes so consider how to balance feedback from different participants in an outreach process. Recreation assets such as shared-use paths often function as destinations, such that access to them should be considered similar to other destinations. In general, recreation should not be a primary (or at least not an overweighted) metric.

With respect to state facility planning, evaluating active transportation connectivity is a process of identifying links (linear segments in the network) and nodes (intersections in the network) in population centers. There are two types of these to consider:

1. *Potential* links and nodes associated with state facilities that we should develop.

2. *Existing* links and nodes that should be further improved for low stress active travel.

Does the state facility function, or could it function, as a link in the active transportation network? Can we restore former network links?

For number 1, the essential question is: Does the state facility function, or could it function, as a link in the active transportation network? For locations that have never been improved for active transportation, if we find evidence (through outreach or otherwise) that people are currently using our facilities to reach destinations we should consider recommending improvements. Alternatively, if our facility is not being used (possibly because it is a high traffic stress link or node) it may still have the potential to improve active transportation connections to destinations. Here it can be helpful to consider the historic connectivity. Were there more opportunities for direct travel between destinations prior to construction of the state facility (or its current configuration)? Do streets end at a state highway and start up again on the other side of it? If so, there may be value in restoring some crossings for active travelers (figure 2 provides an example).

When evaluating a network, even where we have made some active travel improvements, we still need to ask if we have done enough.

For number 2, we need to ask: Has WSDOT provided some active transportation improvements, but the location would benefit from additional or enhanced treatments to improve safety and/or mobility?

If the answer to the questions under number 1 or 2 above is yes, consider recommending active travel improvements on the state facilities, keeping the following principles in mind: relative to their mode, active travelers using a state facility should not experience more delay, less direct travel, more travel inconvenience, or greater exposure to safety concerns than drivers using the facility

Figure 2 Historic (1922) and modern network along a 1-mile section of I-5 in Bellingham. The interstate severed seven historic connections for various streets serving destinations east and west of the current corridor. Today, active travelers tend to concentrate on the remaining Lakeway connection, which also serves vehicles entering and exiting the freeway.

In some cases, a state facility is not suited to active travel and not a good candidate for improvement. If all population center destinations are on one side of a state facility, there may be no connectivity needs that the state facility can address. Or the facility may prohibit pedestrians and/or bicyclists entirely and offer no segments or crossing opportunities that align with destinations. In these cases, look to local route options for potential solutions. In other cases, the state facility might connect to destinations, but a local route is a better option for reaching those same destinations. In the latter case, the state's recommendation would be to improve the local route (though Complete Streets requirements introduce challenges in moving investments off the state system).

When looking at link improvements focus on:

- Increasing availability of a low stress routes through

    - Speed reduction/speed management and roadway reconfiguration.
    - adding new or upgrading existing linear active transportation facilities such as sidewalks, bike lanes and shared-use paths.
        - For sidewalks, consider widening, adding buffers, and reducing the impact of curb cuts.
        - For bike lanes, consider widening, adding buffers, adding vertical elements, using parking protection, or grade separating the facility.
- Reducing indirect direct travel. If collectors and arterials are creating significant out of direction travel, other facility solutions may be needed such as shared-use paths that follow a more optimal alignment for reaching destinations.

When looking at node improvements focus on:

- Improving crossing characteristics where the crossing provides relatively direct connections between key destinations/neighborhoods.
- Improving access to existing crossings that provide relatively direct connections to destinations.
- Developing new crossings. In some cases, there is a need for new, fully separated crossings for active travelers. Existing interchanges for freeways may be indirect relative to the active transportation network, or the traffic conditions may not be appropriate for all ages and abilities.

Relative to linear facilities, crossings are complex. In general, state facility crossings should not be optimized for one transportation mode at the expense of another. Crossing facilities should maximize an active traveler's actual and perceived safety to the extent possible because vulnerable users may avoid crossings that are perceived as unsafe. Ramp crossings or crossings with slip lanes and large turn radii are challenging for active travel, but interchanges are often the only places to cross limited access highways. Ramps can also be more physically demanding for active travel by creating out of direction travel relative to destinations and adding elevation gain in otherwise level terrain. These characteristics may be particularly challenging for people with disabilities. Some interchanges also impose excessive delay for active travelers with multiple pedestrian call buttons and signals timed for vehicle traffic flows.

Steps for investigating connectivity

1. Inform discussion by collecting and reviewing:
    - Safety data
    - Land use plans
    - Local and regional transportation plans (especially Active Transportation Plans)
    - Historical transportation networks
    - Activity data
        - Existing (e.g., Strava Heat Maps, count data)
        - Collected (use portable pedestrian and bicycle counters available through TDGO, use video analytics)
2. Work with partners to:
    - Align with developed and planned active transportation networks.
    - Identify important destinations.
    - Understand safety concerns.
    - Recognize how routes might be made more direct.
3. Take the lead in locations where active transportation planning is underdeveloped, or has been avoided because state facilities were considered out of jurisdiction.
4. Actively investigate the operation of network connections between destinations that involve interaction with the state route:
    - Choose representative trips to follow.
    - Use transit, walking, and/or bicycling to make firsthand evaluations of representative trips.
    - Consider hosting a walk or bike audit.
    - Consider ways to investigate nighttime activity.
5. Develop a robust outreach strategy:
    - Identify user groups, particularly those from underserved populations and including children and people with disabilities, that need to be engaged.

- Align outreach to ensure direct input from users (create engagement opportunities that meet users where they are or otherwise enable users to easily participate).
- Engage with service providers that work directly with underserved populations (Coordinated Transit-Human Services Transportation Plan may be a good resource for contacts).
- Construct strategy to further identify important destinations, understand how people are using the network, recognize how routes might be made more direct, recognize safety concerns.