

REGIONAL WORKBOOK FOR COMPLETE STREETS



A SUPPLEMENT TO *WALK.BIKE.THRIVE!*



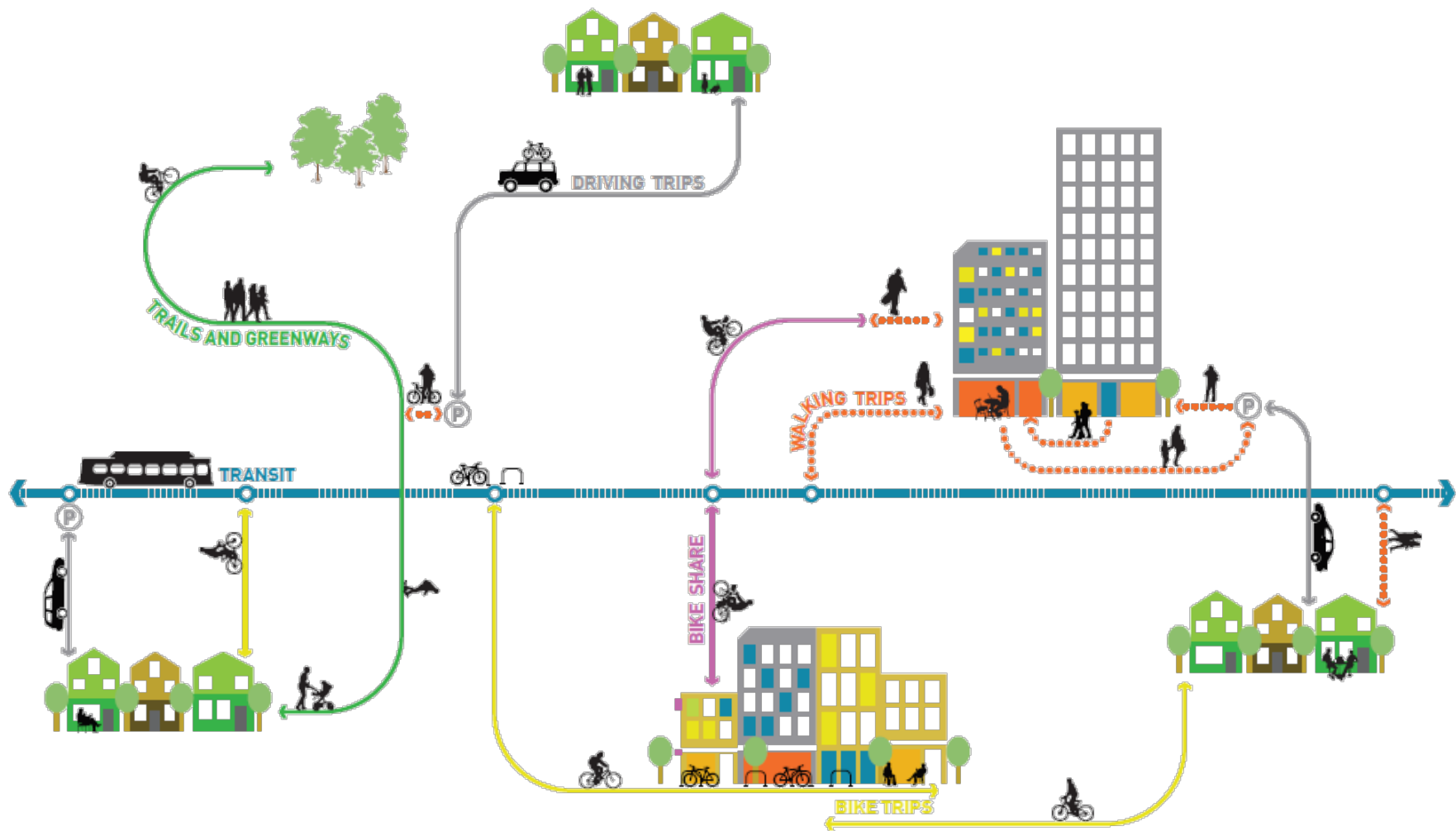
ATLANTA REGIONAL COMMISSION

Most Americans today do not live in towns or cities in the traditional sense that we think of those terms.

Instead most of us are citizens of the region: a large and multi-faceted metropolitan area encompassing hundreds of places that we would traditionally think of as distinct and separate communities.

— *Peter Calthorpe*

HOW DO WE BUILD A REGION WHERE IT IS EASIER & SAFER FOR EVERYONE TO WALK OR BIKE?



Focus investments to support walkable communities

A metropolitan area is boosted by having more walkable and bikeable communities. The region uses transportation and development tools to support active trips along connected street grids with access to parks, schools, commercial areas, transit service, and a mix of housing types.

Address safety and equity issues

The region uses every investment to help decrease pedestrian and bicyclist fatalities and serious injuries as well as providing sidewalks and bikeways for populations that rely on walking and biking out of necessity.

A MORE WALKABLE & BIKABLE METRO ATLANTA



Connect regional trail system

Multi-use paths and trails serve as comfortable “walking and bicycling superhighways” at a regional scale. The region develops partnerships between state, local, and non-profit organizations to make critical regional trail connections.

Improve access to transit

Longer regional trips are best served by walking and bicycling combined with transit. The region works to improve walking and biking access to transit stops and improve the quality and quantity of regional transit service.

Build complete streets

Walkable communities are best supported by complete streets. Suburban arterial roads need to be multi-modal thoroughfares. The region identifies barriers to walking and biking and relentlessly works to address them as opportunities arise.

SECTION 1.

UNDERSTANDING COMPLETE STREETS



What are Streets?

We have come to think of streets as infrastructure for moving cars. But traditionally streets allowed access and provided public space in cities. Roads and highways provided travel between cities. This distinction has blurred in recent times but intentional design of streets and roads is vital to providing safe transportation for all street users and supporting great communities.

Purposes of Streets

Streets and roads perform several fundamental roles in communities:

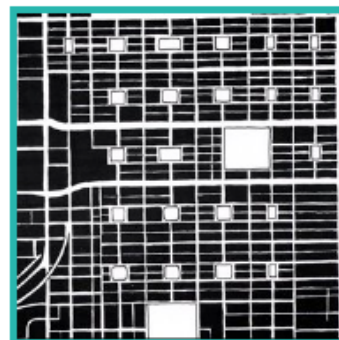
- **Form:** Streets patterns determine community form. Street networks shape how development is distributed and reinforce patterns of travel. A connected grid of smaller streets makes active transportation easier by providing walkable blocks, shortening travel distances, reducing congestion, and increasing the choice of available routes. Long corridors and dendritic road patterns support long automobile trips, are susceptible to congestion, and create barriers.
- **Function:** The design of a street dictates how people can travel. Comfortable facilities for walking, bicycling, and transit access encourage those modes. Automobile-oriented designs discourage walking and bicycling by increasing risk, decreasing comfort, and creating barriers. Elements of street design are guided by regulations but should also be determined by community vision, data analysis, long-range planning, and politics.

Conventional transportation planning places roadways within a hierarchy that determines their transportation function. While functional classification is useful for managing road networks, it is inadequate for design as it does not indicate needs for context-sensitive designs and fails to recognize access needs for the myriad of destinations typically found along streets and arterial roads.

Streets in a Network

Network connectivity determines the utility of the transportation system. Connected streets distribute traffic and reduce congestion. Connected walkways and bikeways increase active transportation. In urban areas, intersections should be frequent and walkways and bikeways should form complete networks.

Modal plans are useful for determining design priorities, but every major roadway should provide multimodal options to meet travel needs and provide safety and dignity for people on foot, on bikes, using assistive devices, and in cars.



A traditional connected street grid (left) compared to a modern, conventional road hierarchy (right).

“The street is the primary structural unit of the city. Streets allow us to communicate and to move about. They constitute the order within the collective whole. Streets are complex institutions with great social, political, and economic depth. Giving them over to the single function of traffic movement, as we have done over the last 100 years, depletes them of their historical depth and role.”

– Doug Allen

Transportation and Land Use Connections

Transportation facilities and adjacent land uses interact in constant feedback loops. Compact development patterns support walkable streets, bicycling facilities, and more transportation choices. Widening roads provides an incentive for dispersed commercial and residential development which strains the road network and spurs continual investment in a few major corridors. These feedback loops foster political and socioeconomic systems invested in their continued success.

Complete Street decisions should consider communities and transportation as a whole and challenge established political, economic, and cultural expectations. To support more walkable places we must build new systems.

Streets make communities. Street networks should provide connectivity and be planned as a multi-century investment. Street elements should provide comfort and safety for everyone, or be made multimodal at every opportunity.

? What Are Complete Streets?

Complete Streets are multimodal roadways designed and operated to provide safe and comfortable access for all roadway users regardless of their age, ability, or choice of transportation mode. People on foot or bike, motorists, and transit users should be able to safely use every street and roadway, even if one mode has priority over another on a particular corridor or stretch of road (e.g. a bus priority lane; bike route; or high occupancy vehicle lane). Complete Streets may be local streets or regional thoroughfares, but each features context-sensitive designs, is rooted in community vision and values, and enables communities and the region to thrive.

United States Department of Transportation

The U.S. Department of Transportation states that **“every transportation agency ... has the responsibility to improve conditions and opportunities for walking and bicycling”** and recognizes Complete Streets as a context-sensitive approach to building an accessible transportation system for all.¹

USDOT defines Complete Streets as **“... streets designed and operated to enable safe use and support mobility for all users. Those include people of all ages and abilities, regardless of whether they are travelling as drivers, pedestrians, bicyclists, or public transportation riders. The concept of Complete Streets encompasses many approaches to planning, designing, and operating roadways and rights of way with all users in mind to make the transportation network safer and more efficient.”**

Sources: 1. USDOT (2010); 2. Georgia DOT (2019); 3. ARC (2015);
4. U.S.C. § 450.306. Scope of the metropolitan transportation planning process.

Regional strategies should encourage context-sensitive roadway designs that enable safe access for all users, including people of all ages and abilities walking, bicycling, driving, and riding transit.

Georgia Department of Transportation

The Georgia Department of Transportation (GDOT) policy is to **“routinely incorporate bicycle, pedestrian, and transit accommodations into transportation infrastructure projects as a means for improving mobility, access, and safety for the traveling public.”**

“GDOT coordinates with local governments and planning organizations to ensure that bicycle, pedestrian, and transit needs are addressed beginning with system planning and continuing through design, construction, maintenance and operations.”²

GDOT’s policies for Complete Streets are detailed in Chapter 9 of the *Design Policy Manual* and supports complete streets in urbanized areas statewide. Projects and design elements are informed by a range of safety, context, and demand warrants and community input.

Atlanta Regional Commission

ARC’s uses Complete Streets to relentlessly and incrementally address uncomfortable conditions for walking and biking wherever the opportunity arises. **ARC supports the implementation of Complete Street principles on every roadway and with any project receiving federal funds.**³

As a metropolitan transportation planning agency, ARC must “provide for consideration of projects and strategies that will ... increase the safety of the transportation system for motorized and nonmotorized users.”⁴

ARC’s uses a strategic approach for context-sensitive Complete Street investments on the existing roadway network. ARC utilizes or re-orientes existing funding and programs to support communities and create a safer, more equitable transportation system for all.

For several decades now, movement has taken precedence over place. The form and content of urban development is now shaped largely by transportation policies. These policies can regain proper civic purpose and meaning only when they are subordinated to a larger ecological and communal project.

— Leon Krier



Why are Complete Streets Important on Major Roads?

Modern metropolitan areas have largely developed along higher-traffic arterials. These roads are where regional priorities converge and often conflict: safety, speed, access, and regional movement. Major roads are critical to build as multimodal corridors and should balance both local and regional needs.

- Arterials and thoroughfares roads frequently provide the only access to a large portion of the Atlanta region’s retail, commercial, and residential areas as well as many regional transit routes.
- Arterial roads account for a high percentage of crashes in the region, especially those resulting in fatalities or serious injuries.
- Conventional modern arterial designs rarely included places to walk or ride a bike and make many trips infeasible outside of a car.
- As the Atlanta region continues to grow, major roads will continue to develop or be redeveloped and provide opportunities for incremental change.

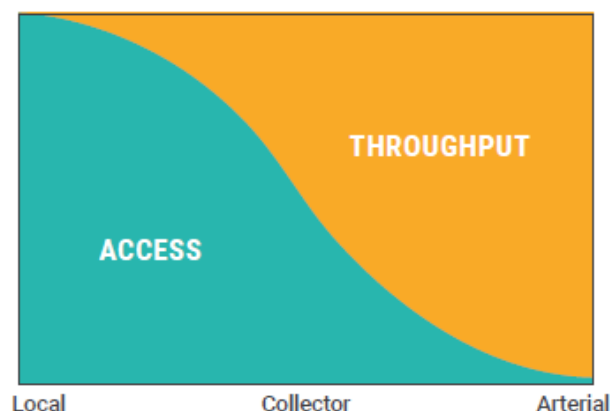
Table 1. Traditional vs. Conventional Roadway Design Values

TRADITIONAL	CONVENTIONAL
Prioritize access	Prioritize mobility
Promote short trips	Reward long trips
Build connected streets	Build dendritic street hierarchy
Design for slower speeds	Design for higher speeds
Encourage mixed land uses	Encourage single land uses
Serve all roadway users	Serve automobiles
Assume people walking	Assume no walking

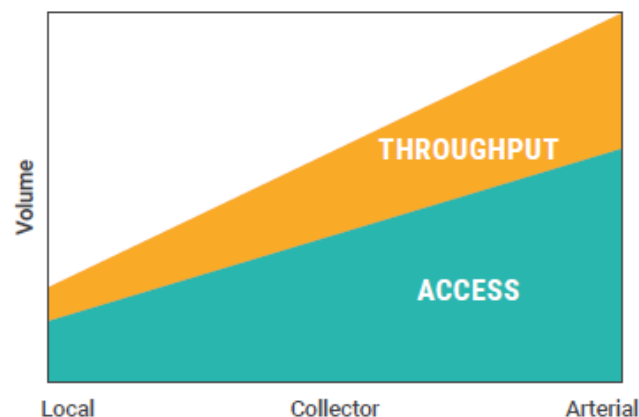
Regional strategies should encourage traditional roadway design values and context-sensitive roadway designs to improve safety, connectivity, and access along major corridors.

Figure 1. Restoring Streets to their Traditional Purpose

Conventional Purpose of Arterial Streets: Single-Purpose Mobility



Traditional Purpose of Arterial Streets: Multi-Modal Access





Why are Complete Streets Regionally Important?

Complete Streets support (and are supported by) walkable communities and contribute to a more walkable region. Walkable communities are small in land area, but cumulatively help shape regional growth and achieve regional goals:

- **Sustainable Environment:** Large cities often support multimodal transportation and lower per capita carbon emissions, but above densities that support shorter trips and increased travel by low-emission transportation modes.¹ For many large urban areas, metropolitan-wide travel patterns and suburban commute trips significantly outweigh center-city efficiencies.²

Reducing emissions requires investment in existing urban areas, but also regional changes in transportation and development patterns: more walkable urban centers; denser, mixed-use suburbs; and more regional transit and active transportation options.

- **Social Equity:** Commuting times are the best predictor of economic opportunities and are strongly influenced by regional growth patterns. The impact of transportation on the ability of low-income families to escape poverty is most striking in areas with high degrees of segregation, income inequality, and sprawling development.³

Equity solutions are complex, but intentional strategies must: create affordable and workforce housing; provide transportation options; improve education; and increase regional accessibility via increased transit, increased last-mile connectivity, and increased affordable housing within walkable communities.

- **Competitive Economy:** Walkable urban places occupy less than 1% of the Atlanta region's land area, but contain nearly 20% of the region's jobs. They generate higher values with lower long-term costs than driving-only areas.⁴

Building walkable centers (along with improving education) is the most effective economic development strategy that the region can pursue.

Regional strategies should encourage compact, walkable, and transit-accessible communities. Compact communities provide the proper context for Complete Streets, while safe and multimodal streets better support community-scale travel.

Correlation of per capita automobile carbon emissions rates and urban density in 14 metropolitan center-cities



Urban densities correlate with per capita emissions, especially at densities that support lower-emission travel modes. But large city emissions are heavily influenced by regional commuting patterns that outweigh urban efficiencies.

Adapted from: Gately, Conor, K. et al. (2015) "Cities, traffic, and CO₂: A multi-decadal assessment of trends, drivers, and scaling relationships"

INDICATORS OF LOWER CO₂ EMISSIONS (IN RANKED ORDER):

Residential:	Transportation:
More presence of multifamily housing	More multimodal accessibility
Decreased size of residences	Increased transit share
Increased density of housing	Shorter distance to regional activity centers
Increased number of people per household	Higher population density
	More neighborhood walkability

Source: Atlanta Regional Commission. (2014) "Impact of Community Design on Greenhouse Gas Emissions".

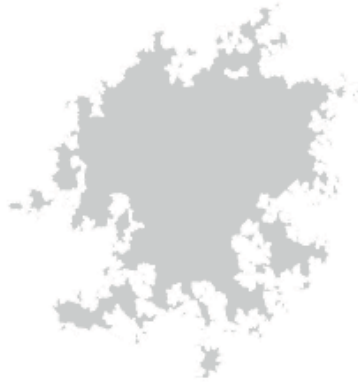
Sources: 1. Gately (2015); 2. Jones (2014); 3. Chetty (2015); 4. Leinberger (2013).

SECTION 2.

MAKING DECISIONS ABOUT COMPLETE STREETS



How Can Data and Policy Inform Complete Streets?



Regional Scale & Urbanized Areas

Urbanized areas are the scale at which modern communities function. Census-designated urban areas (including the majority of the Atlanta MPO area) represent relatively dense developed territories and determine regional travel patterns. Complete Streets should be considered anywhere within an urbanized area, though specific elements should be context-sensitive and assessed at the corridor or local level.



Walking and Bicycling Demand & Propensity

Propensity for walking and biking in the region is not evenly distributed. Density, proximity to certain destinations (such as schools or stores), and other place-based factors contribute to areas with higher opportunities for walking and biking. This data can help determine destination density along a corridor, anticipated demand for roadway facilities, and help prioritize walking and bicycling infrastructure.



Regional Corridors: Multimodal Thoroughfares

Thoroughfares are locations where many regional demands converge. Major roads support a range of communities, transit service, and both local and regional trips. Many thoroughfares in metro Atlanta are high risk for people on foot and bike; building multi-modal corridors is important for regional travel or local access in challenging locations. ARC's designated Strategic Regional Thoroughfare Network and other arterials provide regional mobility and connect major activity centers.



Regional Development: Centers & Places

Regional centers and places are compact areas that are naturally (or aspirationally) appropriate for walking and bicycling. These areas encompass a wide range of contexts and densities, but within each center planning for pedestrians and bicyclists is of equal importance to the automobile. ARC's Regional Development Guide and Unified Growth Policy Map identify centers in neighborhoods, business districts, and small towns across the region.



What is the Regional Strategy for Complete Streets?

Use Regional Policies to Prioritize Complete Streets

Complete Streets should be considered everywhere in the metro Atlanta region. Incremental investments help build a safe transportation network, support walkable communities, and accommodate walking, bicycling, and transit access along suburban arterials and to high-priority destinations.¹

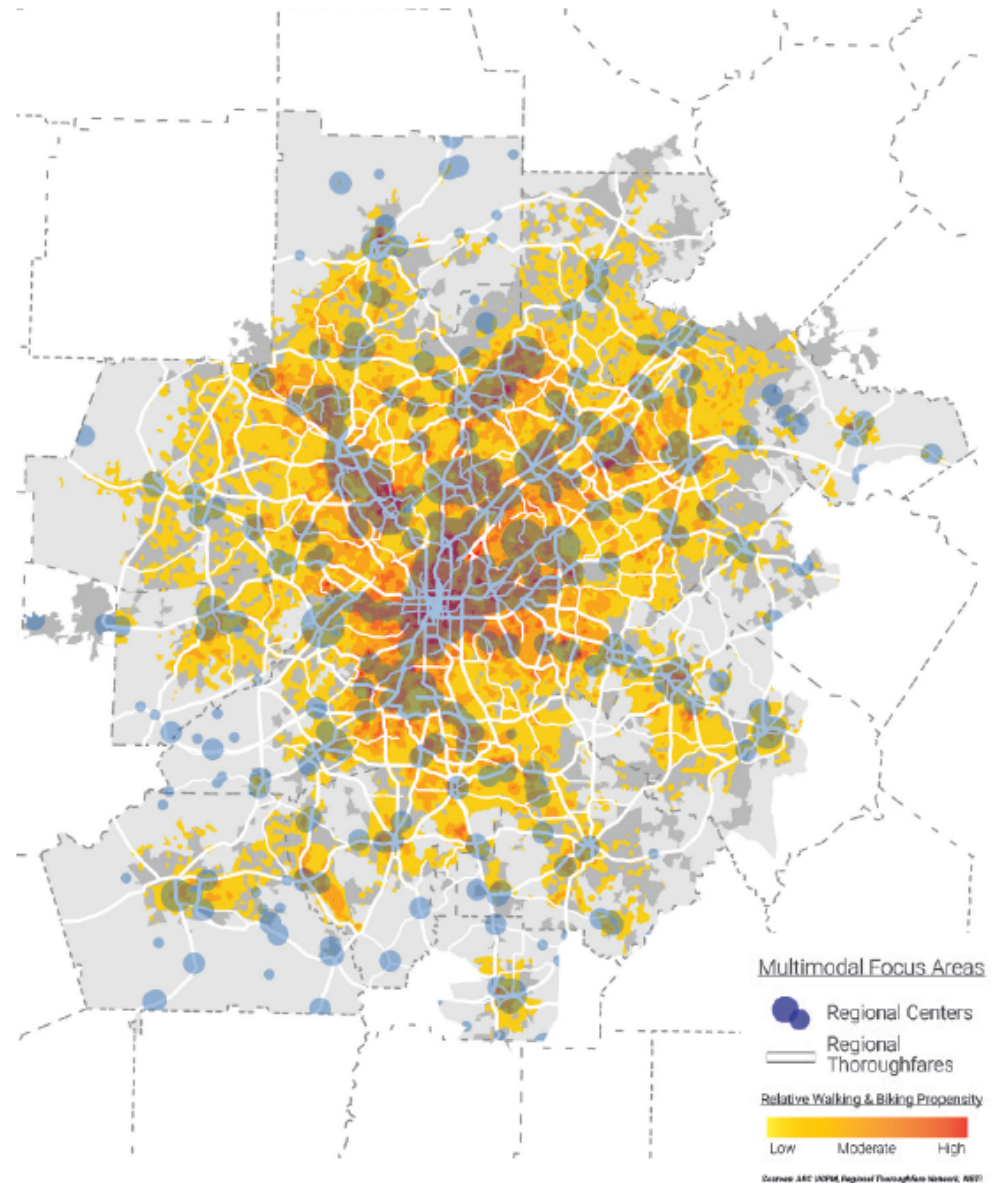
Walkable Communities: Complete Streets help make regional centers and towns walkable and bikeable communities. Investments in regional centers support walking, bicycling, transit, and better long-term growth for the region. These areas should be the primary focus of transportation and development:

- **Existing urban & town centers** – use Complete Streets to increase travel options, meet demand, and support existing multimodal character.
- **Aspirational centers** – use Complete Streets and dense street networks to support multimodal options and short trips in new developments.

Multi-Modal Thoroughfares: Complete Street elements should be used strategically on regional corridors where many priorities converge – businesses, services, residences, transit routes, and traffic – in order to:

- **Reduce risk** and improve safety for people walking and bicycling.
- **Provide access** to high-priority destinations, including: schools, parks, commercial areas, residential neighborhoods, grocery stores, or community activities.
- **Support existing or latent demand**, especially along corridors with evidence of people walking or bicycling (i.e. a worn path along the roadside).
- **Support regional transit routes**.
- **Connect** neighborhoods and cities via walkways, bikeways, and paths.

Regional strategies should support context-sensitive Complete Streets throughout metropolitan Atlanta. Urban centers should feature Complete Streets. Regional thoroughfares should be multimodal. Complete Streets within communities are complimented by thoroughfares as well as regional transit and greenway trails for longer connections.



Source: 1. adapted from ITE (2010).



What is the Regional Strategy for Complete Streets?

Use Complete Streets to Reduce Risk

Complete Street elements should be considered on every roadway in the metro Atlanta region. Incremental investments help build a safe transportation network, increase connections within and between communities, and accommodate walking, bicycling, and transit access to high-priority destinations.

Safety can be determined by crash rates or the risks that people are exposed to when walking and bicycling. Assessing risk can help communities be more proactive in preventing crashes and eliminating serious injuries and fatalities.

Factors that contribute to risk along a corridor include:

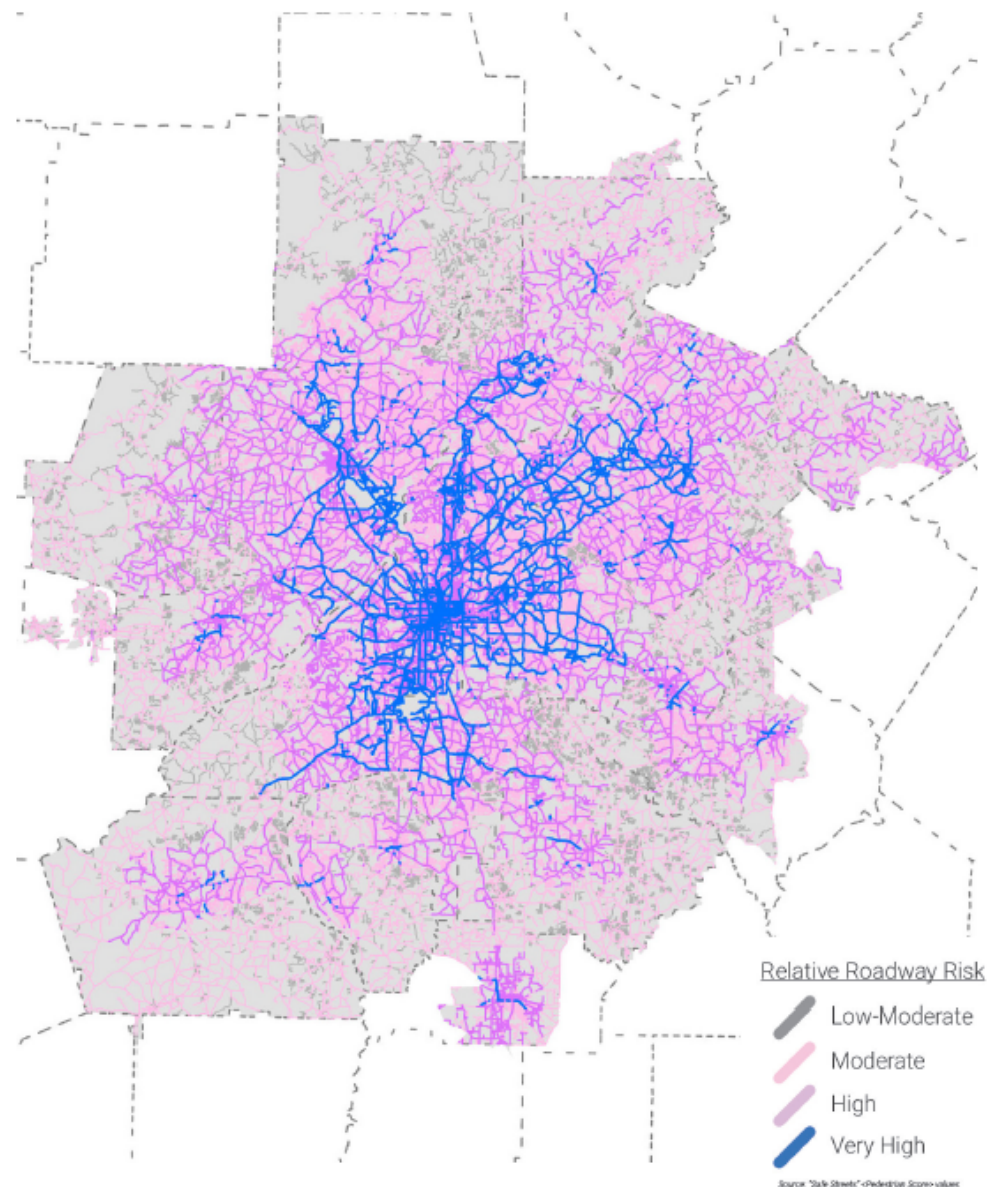
- **Roadway Characteristics:** Some roadway features are associated with higher risks for serious crashes, including: vehicle speeds, lighting, presence of crosswalks, number of lanes, and roadway classifications.
- **Travel Demand:** Walking and bicycling trip estimates and transit service indicate relative levels of travel, exposure, and risk.

Roadway design is the foundation of traffic safety, but safer elements are unevenly distributed in the region – especially for vulnerable populations and underserved communities. Community-wide exposure to risk must be assessed to determine Complete Street needs:

- **Equity & Policy Priorities:** Regional distribution of risk factors can indicate disproportionate exposure for specific geographies or populations.

Every transportation investment should incorporate proven safety measures to address risk factors. The map at right illustrates regional risk factors and travel demand for walking and bicycling. This data can help identify priority needs for Complete Streets.

Regional strategies should support safer roadway designs throughout metropolitan Atlanta. Every transportation investment should reduce risks for people walking, bicycling, and driving. Complete Street elements and facilities should be considered intrinsic and immutable in every project.



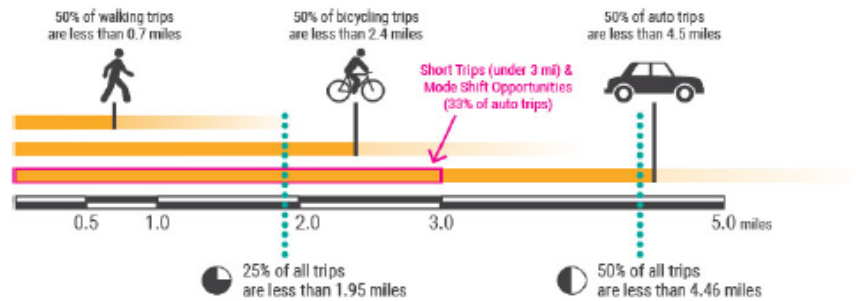
For more information, see ARC's "Safe Streets for Walking & Bicycling" (2018) report.



What is the Regional Strategy for Complete Streets?

Use Complete Streets to Support Short Trips

Metro Atlanta's development patterns often require long trips. Reliance on cars for long trips increases congestion, limits economic mobility, and creates stress and poor health outcomes. Walking and bicycling are well suited for short trips, but too many short trips still require driving due to lack of comfortable walkways or bikeways. Reducing trip distances and shifting modes requires combining compact development practices and Complete Streets.

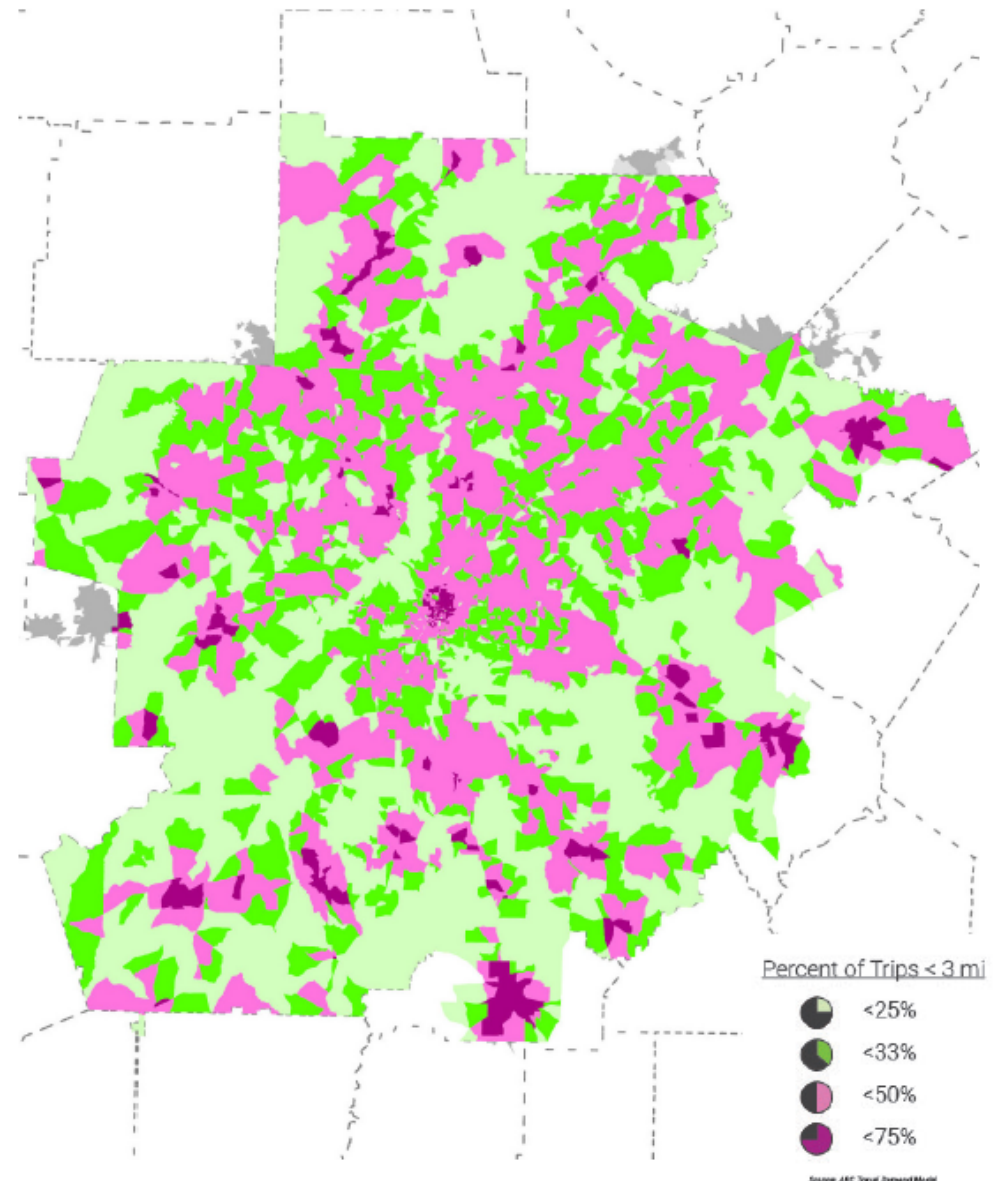


Regional travel is complex, but areas with shorter trips often have:¹

- **Higher Street Connectivity:** A grid of smaller streets shortens travel distances and increases route choices.
- **Higher Density:** Concentrations of residential and commercial uses enable more proximity, more walking and cycling, higher economic activity, lower infrastructure costs, lower cost of living, and environmental conservation.
- **Mixed Zoning:** Increased mixed-use zoning enables trips to be shorter and increases the number of destinations that can be accessed without driving.
- **Less Parking:** Reduced parking minimums plus market-based price strategies incentivize different travel decisions and reduce public costs of parking.

Regional strategies should prioritize short trips. Community development efforts should create compact communities and concentrate destinations. Transportation investments should support Complete Streets to provide comfortable facilities that increase walking, biking, and transit access.

Source: 1. Georgia Tech CQGRD (2012).



Source: ABC Travel Demand Model



What Are the Elements of a Complete Street?

The foundation of Complete Streets are engineering elements that reduce conflicts and increase safety, including:

- Safe places to walk, travel by bicycle, or cross the street
- Better access to high-priority destinations
- Context-sensitive designs that support adjacent land patterns
- Facilities that either slow speeds or separate users

Safe Streets identified a set of twelve safety measures that address common high-risk conditions in the region (right) and should be included in all roadway projects. Detailed design information for each safety measure is available from the Federal Highway Administration¹ and Georgia Department of Transportation². FHWA's "Proven Safety Countermeasures" are marked with an asterisk (*).

The following pages explore general elements of Complete Streets.



Medians and Pedestrian Crossing Islands*



Pedestrian Hybrid Beacon*



Road Diet*



Changing Speed Limits*



Leading Pedestrian Interval*



Rectangular Rapid Flashing Beacons



Street Lighting



Separated Bike Lanes



Neighborhood Greenway/
Bike Boulevard



Sidewalks*



Crosswalk Visibility Enhancements



Traffic Calming

Sources: 1. FHWA Proven Safety Countermeasures (2017); 2. GDOT Design Policy Manual (2019).

? Do Complete Streets All Look Alike?

No. The different components of a Complete Street may vary as much as the context in which they are applied. Two parallel streets just a block away from each other in the same community may look very different because of changing land uses and differing purposes of the street. However, both streets need to provide basic levels of safety, comfort, and access for all users while responding to the needs of the street network and vision and goals of the community.

In the Atlanta region, the same road may transition from rural to suburban to urban core and back again in the space of a few miles. The American Association of State Highway and Transportation Officials (AASHTO) broadly identifies five land use types, often called an urban design transect, that a road may traverse and connect. Each zone along the transect has a different context, a different function, and thus different design needs and different community priorities even though it's still the same road. The examples that follow are from a single corridor in the region.

Measuring Walkable Communities

Density is needed to support walking, bicycling, and transit service. Walkable densities are seldom clearly defined and rarely follow political boundaries — driveable sub-urban areas exist within cities and denser pockets of suburbs can support walking and bicycling.¹

General metrics can help assess walkable communities:

- **300-600 feet** average intersection spacing creates walkable blocks and convenient crossings.
- **20-35 dwelling units per acre** provides densities for highly walkable districts.
- **100 blocks per square mile** indicate favorable densities for walkable areas.
- **Greater than 8 dwelling units per acre** supports both walking and transit service.
- **70 or greater Walk Score** indicates good accessibility.

"The key elements needed for an active community are highly mixed land uses, short connected blocks, and high-quality infrastructure for pedestrian and bicycle traffic. Sidewalks, convenient crosswalks, bicycle lanes, quality transit service, traffic calming measures, mixed-use zoning, and connected street networks facilitate active transportation and save lives.

However, these design elements are lacking in many parts of the region. Major changes are needed in both land use and transportation practices in order to design active communities and fund adequate multimodal infrastructure."

— "Plan 2040 Health Impact Assessment,"
Georgia Tech Center for Quality Growth &
Regional Development



ⁱ Adapted from: ITE Walkable Thoroughfares (2010); FDOT Context Classification Guide (2017); Plan 2040 Health Impact Assessment (2012); "WalkUP Wake-Up Call" (2013); and Reid Ewing (2002).

SECTION 3.

CRITICAL QUESTIONS ABOUT WALKING & BICYCLING ON SUBURBAN ROADS



Critical Questions About Walking and Biking on Suburban Roads

There are design solutions to make suburban roads better for walking and bicycling, including the safety measure and components of a Complete Street shown earlier (see pages 10-11). However, even these designs can sometimes seem insignificant against the overwhelming backdrop of an extensive suburban roadway network that routinely includes design features known to increase risk. Over time, these risks must be systematically eliminated through better design.

In the pages that follow, the Complete Streets Workbook demonstrates the value of incremental change to bringing basic dignity and inclusiveness to the harshest road environments while beginning a successful transformation to more complete streets and walkable communities in the medium- and long-term. The Workbook also tackles several critical questions that are frequently raised by planners and designers faced with making suburban roadways more hospitable and safe for people on foot and bike.



1. How To Make 4- and 5-lane Suburban Roads More Complete?

Four- and five-lane arterials are pervasive across the entire region and feature many or all of the most dangerous design elements identified in **Safe Streets**. They also provide the backbone of regional transit services, connect communities across major barriers (e.g. railways, rivers, and highways), and provide access to the majority of the destinations for every aspect of our daily lives.



2. Bikes on Suburban Arterials: On-street or Off-street?

Selecting the appropriate facility to serve people on bikes is a particular challenge on suburban arterials. The workbook provides guidance on how to choose between on- and off-street options, and identifies several planning and design factors to address before making a decision.



3. Where To Put a Crosswalk?

Safe pedestrian crossings are an essential element of Complete Streets. The workbook reviews a wide variety of potential crosswalk locations and types to choose from, depending on context, demand, and risk.



4. How Do Complete Streets Support Regional Transit?

Transit trips typically start and finish on foot or bike and yet many suburban arterials, where transit services are located, have no sidewalks, bike facilities, or crosswalks to access the transit stops. The workbook highlights the problems this can cause, and identifies several solutions to increase safety around transit stops.

Four-Lane Existing Conditions

NO CONNECTIONS
BETWEEN BUILDINGS, PARKING LOTS



NO PEDESTRIAN REFUGE/CROSSING ISLANDS

NO BICYCLE FACILITIES

LACK OF PEDESTRIAN AMENITIES INCLUDING SIDEWALKS,
CROSSWALKS, AND PEDESTRIAN SCALED LIGHTING.

Four-Lane Short-Term Solution: Deliver Dignity, Comfort, and Safety

At a minimum, four-lane arterial streets should have a sidewalk on both sides and safe crosswalks at frequent intervals along the length of the corridor. Signalized crossings should be provided at all major intersections; mid-block Pedestrian Hybrid Beacon crossings may be appropriate where signalized intersections are spaced widely apart (e.g. more than a quarter of a mile).



SIDEWALKS provide safe places for people traveling by foot and by wheelchair. GDOT recommends a minimum of 5-foot-wide sidewalks, while NACTO recommends a minimum of 6 feet. AASHTO also recommends a minimum 5-6ft buffer between the sidewalk and travel lane. However, the land use context, transit, and pedestrian activity should always be considered.



CROSSWALKS provide an indication to pedestrians on where they should cross the street. They also provide motorists with an indication of where pedestrians are likely to be.



PEDESTRIAN HYBRID BEACON (PHB) is a pedestrian-activated signal that alerts drivers to pedestrians crossing the road.

Long-Term: Redevelopment and Land Use Changes

Changing land uses patterns, adding new streets, and increasing density in suburban areas create opportunities for a more connected, safer, and human-scale network of streets. A street grid that provides more connections will enhance access, mobility and choices, thereby increasing the people-carrying capacity of the overall network.





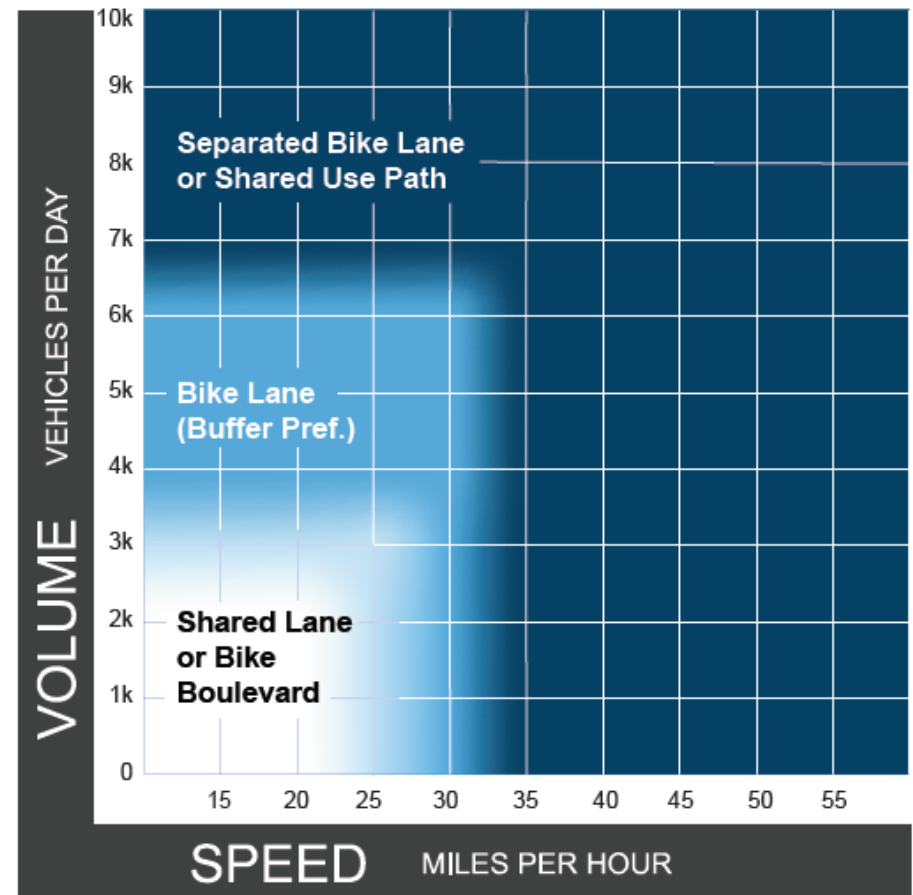
Bikes on Suburban Arterials: On-street or Off-street?

One of the most challenging questions planners and designers face is how to accommodate people riding bikes on suburban arterial roadways.

Current or projected demand for bicycle facilities on long stretches of busy, high-speed suburban roads may not warrant the cost of fully-separated bike lanes. Expecting cyclists to share lanes with cars, buses, and trucks traveling over 35 MPH is unrealistic. Sidewalks that are narrow and only on one-side of the road are potentially dangerous for people on bikes, and not ideal for people on foot.

Sidepaths (shared-use paths within a road right-of-way) have had a poor reputation amongst bicyclists for several decades because they have often been little more than glorified sidewalks. National and local crash data identifies "riding on the sidewalk" and "wrong way riding" as significant contributing causes to bicyclist crashes, so the concern is appropriate.

Recent advances in bike facility design enable a more pragmatic approach to selecting appropriate bicycle facilities on suburban arterial streets. Several critical planning factors and design principles are now available to help ensure a more appropriate facility choice and designⁱⁱⁱ. The most significant are traffic speeds and volumes.



Notes

- Chart assumes operating speeds are similar to posted speeds. If they differ, use operating speed rather than posted speed.
- Advisory bike lanes may be an option where traffic volume is <3K ADT.

i Michigan Department of Transportation. "Sidepath Application Criteria Development for Bicycle Use". (2018). Retrieved September 2019 from: https://www.michigan.gov/documents/mdot/SPR-1675_Sidepath_Application_Criteria_Development_for_Bicycle_Use_Final_Report_2018-07-09_628346_7.pdf

ii FHWA. *Small Town and Rural Multimodal Networks*. (2016). Retrieved September 2019 from: https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/small_towns/

Where To Put a Crosswalk?

Safe pedestrian crossings are an essential element of Complete Streets. Many streets in the Atlanta region, especially outside the urban core and town centers, provide too few safe places to cross street. According to FHWA:

"Pedestrians have a right to cross roads safely, and planners and engineers have a professional responsibility to plan, design, and install safe and convenient crossing facilities."ⁱⁱⁱ

What Factors Influence Street Crossings?

- **Legality:** Crosswalks exist at nearly every intersection in Georgia whether they are marked or not.^{iv} Crossing the street outside of an intersection is legal in most places (as long as pedestrians yield to vehicles) except "between adjacent intersections at which traffic-control signals are in operation."^v
- **Destinations:** People cross where they need to and often in the most direct line possible. Crosswalks should be closely spaced in dense urban areas or strategically located between destinations elsewhere, including transit stops.
- **Crossing Distance:** The width of the street influences how long it takes to cross. Longer distances need greater time, more protection, and higher visibility. Urban areas should reduce lanes to minimize crossing distances.

Should Crosswalks Be Marked?

Yes. Crosswalks should be marked at all intersections, especially where pedestrians are expected or desired to cross the street. The Georgia DOT's adopted crosswalk marking pattern is highly visible, lower maintenance than alternate styles or materials, and should be the default pattern for all locations. In the urban core, urban areas, and town centers, therefore, most intersections should have marked crosswalks.

Street Connectivity & Walkability Measures

Character Areas	Intersection Density per Sq Mi	Block Perimeters	Block Length
Walkable areas	Greater than 100	2500-3000 ft (or less)	300-600 ft
Suburban corridors	Less than 100	Greater than 3000 ft	Greater than 600 ft



A long but accessible, marked, and signalized intersection.

iii US DOT, Federal Highway Administration. *Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations*. (2005). Retrieved December 2018 from: <https://www.fhwa.dot.gov/publications/research/safety/04100/01.cfm>

iv Georgia Code: **§ 40-1-1.(10) Definition of a Crosswalk:** "Crosswalk" means (A) That part of a roadway at an intersection included within the connections of the lateral lines of the sidewalks on opposite sides of the highway measured from the curbs or in the absence of curbs, from the edges of the traversable roadway; or (B) Any portion of a roadway at an intersection or elsewhere distinctly indicated for pedestrian crossing by lines or other markings on the surface.

v <https://www.gahighwaysafety.org/campaigns/pedestrian-safety/pedestrian-safety/what-the-ga-codes-says-about-pedestrians/>



How do Complete Streets Support Regional Transit?

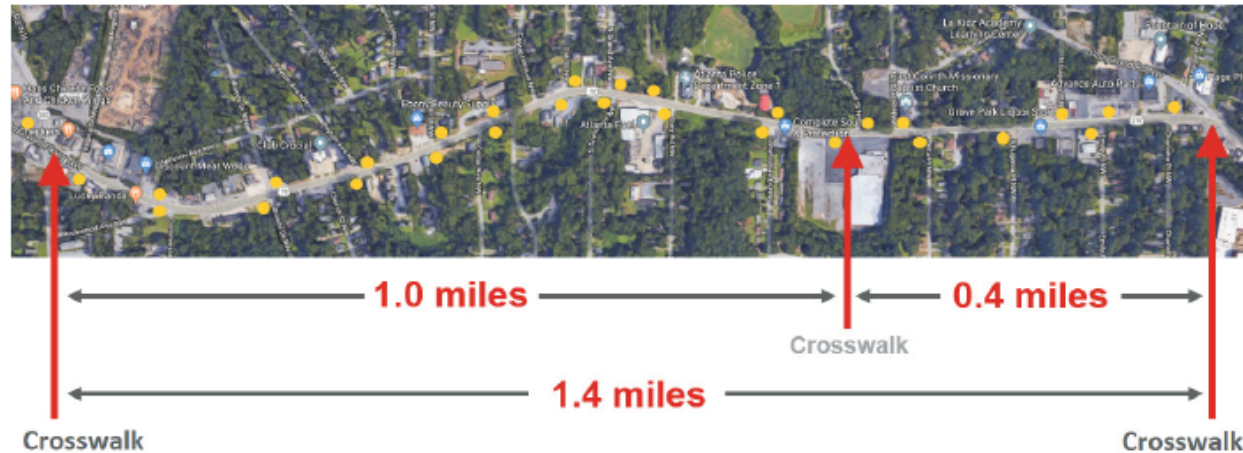
Across metropolitan Atlanta, transit service is a key resource in expanding mobility options and serving a full range of travel needs while reducing reliance on driving. Nearly three quarters of transit trips in metro Atlanta begin with a walk to a bus stop, train station, or park-and-ride lot.

- Most transit trips include walking, making sidewalks a critical piece of transit infrastructure.
- Walking and bicycling expand the service area and customer base of transit routes.
- Bus access almost always involves crossing a street on foot.
- Investments in pedestrian infrastructure can reduce demands on paratransit operators.

Improving walking and bicycling conditions along the streets used to access transit stops and stations is key to making transit more attractive and convenient for more people. Complete Streets components should be used to ensure comfortable and convenient access to transit stops and stations:

- Ensure every sidewalk and bus stop is ADA-compliant.
- Create mid-block crossings, especially with high-visibility features: RRFBs, warning beacons, median islands, and other safety measures.
- Consolidate bus stops (within reason) to balance higher use and convenient spacing.
- Manage driveways and other curb cuts.
- Make stations easy and convenient to access.

How far would you walk for a crosswalk?



Design Information and Resources

This 1.4 mile stretch of suburban road has more than a dozen bus stops (shown by the yellow dots) but only one marked crosswalk between major intersections. There are no sidewalks. Installing a crosswalk at each bus stop or local intersection would meet the recommendation on page 34.

More detailed design guidance and information can be found in the [PEDS' Safe Routes to Transit guide](#).

How are we to tame this force
unless we understand it and even
develop a kind of love for it?

— *J.B. Jackson*