

CONNECT FORTVILLE



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Adoption

This Thoroughfare Plan shall be in full force and effect for the jurisdiction of the Town of Fortville on ____Insert Date____. The effective date is based upon the passage and notice of adoption as required by law.

This Thoroughfare Plan was recommended for adoption by the Hancock County Area Plan Commission as Resolution #XXXX on ____Insert Date____.

This Thoroughfare Plan was passed and adopted by the Fortville, Indiana Town Council, as an amendment to the Fortville Comprehensive Plan as Resolution #XXXX on ____Insert Date____.

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Introduction

Connect Fortville amends the transportation section of the Envision Fortville Comprehensive Plan (adopted 2014) and represents the Town of Fortville Thoroughfare Plan. This amendment is necessary to provide an expanded review of the transportation system as opportunities for economic growth and development continue to increase.

Comprehensive Planning is a process that determines goals and aspirations for the future of a community. What results is a Comprehensive Plan document that provides a basis for public policy regarding local decision-making for land use, recreation, utilities, housing, transportation, and other areas of community and economic



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development. A Thoroughfare Plan, frequently developed in conjunction with the Comprehensive Plan, provides insight for specific questions surrounding transportation policy including recommendations for improvements and expansions to the existing transportation network throughout the 20- to 25-year planning horizon.

Per Indiana Code 36-7-4.503(6), a thoroughfare plan, as part of the Comprehensive Plan, may include: "a short- and long- range plan for the location, general design, and assignment of priority for construction of thoroughfares in the jurisdiction for the purpose of providing a system of major public ways that allows effective vehicular movement, encourages effective use of land, and makes economic use of public funds."

Specifically, a Thoroughfare Plan identifies the location and type of transportation facilities needed to meet projected growth. Due to the amount of current and projected growth in Fortville, the Town has elected to develop a more extensive plan, Connect Fortville.

Previous Plans

Hancock County Transportation Plan

The Hancock County Transportation Plan describes the primary method of implementing the transportation related goals of Hancock County within the Hancock County Comprehensive Plan. The Transportation Plan is comprised of several key elements, including (1) the Hancock County Thoroughfare Plan, (2) a Mass Transit Plan, and (3) a Critical Areas Summary. In addition, there is discussion of Hancock County's role in the regional transportation system, as well as implementation tools for safe and efficient roadways.

Specifically, the Thoroughfare Plan section describes the planned road network for Hancock County. It establishes a hierarchy of roadway

types that will form a safe and efficient system to serve both rural and growing areas of the County effectively. The Thoroughfare Plan takes into consideration not only current road conditions and connections, but those improvements that will be necessary to accommodate future growth.

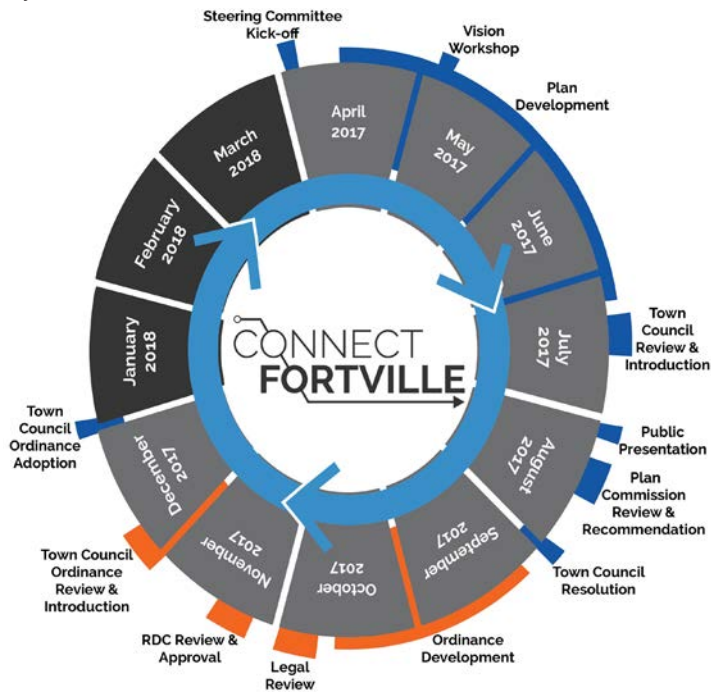
Envision Fortville Comprehensive Plan

Envision Fortville is the Comprehensive Plan completed for the Town of Fortville in 2014, with a planning horizon of 20 years. It set the vision and goals for Fortville's future and developed a pathway to get there by working with residents, citizens, business owners, town officials, and community leaders. The five most important issues identified in Envision Fortville were (1) revitalizing downtown; (2) access to high quality education; (3) managing growth; (4) maintaining a safe, crime, and drug-free community; and (5) ensuring a safe, convenient, and economic transportation system. In addition to the development of a cohesive community vision and identification of issues, Envision Fortville provided a prioritized list of action items to guide project implementation.

The Hancock County Transportation Plan and Envision Fortville Comprehensive Plan set the overarching goals and context for the Connect Fortville Thoroughfare Plan. The functional classification scheme set within the Hancock County Transportation Plan also establishes a base for the local transportation network, but does not reach the detailed level of support necessary for proper right-of-way preservation. Fortville is continuously growing, changing, and evolving as a place of human interchange and capital investment. An effective transportation system is vital for the movement of people, goods, and ideas and must be properly managed to support projected growth. Connect Fortville provides a foundation for the successful management of the transportation system by analyzing potential impacts and guiding implementation through the Envision Fortville vision and goals.

Planning Process

Any successful plan relies upon resident participation to represent the broad perspectives of community members. Typically, this is accomplished by establishing a steering committee that represents various community stakeholder groups, while additional public input opportunities are provided throughout the process. Since a majority of community input is gathered through the steering committee, one of the most important aspects of plan development is the creation of a steering committee that represents a variety of disciplines, organizations, and areas of the community. Existing conditions are gathered and the vision, goals, and objectives begin to be formed by combining public input and preliminary analysis. Further analyses identify the problems that must be solved to accomplish the set vision. Proposed solutions are packaged, presented for public comment, refined, and finalized. Finally, before a thoroughfare plan is adopted and amended into the Comprehensive Plan, it must be reviewed by the Plan Commission.



Figure__ - Connect Fortville timeline.

Plan Components

The Connect Fortville Thoroughfare Plan is comprised of two important components: (1) Thoroughfare Plan Policies and (2) a Thoroughfare Plan Map. The policies were derived from the goals and objectives developed in the Envision Fortville Comprehensive Plan that pertained to transportation in and around Fortville. The Thoroughfare Plan map is a graphic representation of those policies applied to the physical features of the greater Fortville Area. The map also incorporates the anticipated areas of future growth as represented in the Comprehensive Plan and identifies improvements necessary to accommodate that future development.

This Plan serves four primary purposes:

1. Establishes a local functional classification system with recommended design standards,
2. Identifies system improvements and connections,
3. Determines right-of-way needs for corridor preservation, and
4. Guides local and regional planning agencies.

Connect Fortville provides key analysis of the transportation network by reviewing existing issues and projecting problems that may need to be addressed in the future. This analysis, along with a thorough review of how the transportation network operates allows a local roadway classification system to be established and recommends design standards for those roadways. Based on public input and an evaluation of goals and objectives from the Envision Fortville Comprehensive Plan, the Plan also sets development priorities and right-of-way (ROW) requirements.

Guiding Principles

Four principles were established from the Envision Fortville Comprehensive Plan to guide the Connect Fortville document: safe, convenient, economic, and inclusive.

Safe Transportation System

The transportation system must be safe for all users. The design of the

transportation network has a profound effect on traffic fatalities. Every day there are vehicles, bicycles, and pedestrians involved in crashes that result in severe injuries and fatalities. However, unsafe conditions and fatal crashes do not eliminate use of the transportation system. Thus, this plan focuses on improving system safety to reduce the potential for serious and fatal crashes. As a guiding principle, safety will be integrated throughout the life cycle of the transportation system, including planning, design, engineering, construction, and maintenance activities.

Convenient Transportation System

The transportation system must be efficient and reliable. The purpose of a transportation system is to connect people to each other and to destinations. System convenience is defined by the ability of users to easily identify routes and consistently determine the travel time required. To successfully implement a convenient transportation system requires a balanced approach to integrate mobility and accessibility. The use of a roadway hierarchy encourages sufficient distribution of traffic, balanced among the modes, to support existing and proposed land use development to conveniently connect people and places.

Economic Transportation System

The transportation system must encourage and support economic growth. Thus, projected land uses indicating the type and location of future demand for the transportation system must be considered. An effective transportation system will not only support existing demand, but future demand to attract business, jobs, and economic opportunities. Connect Fortville links a roadway hierarchy to surrounding land uses to complement economic expansion.

Inclusive Transportation System

The transportation system must be designed for all users. Consideration for balancing the needs of cyclists, pedestrians, community members with disabilities, and opportunities for transit connections, as well as motorists are vital to ensuring a sustainable transportation system is in place. Connect Fortville responds to the desire of community members to include multi-modal improvements.



Analysis

The transportation system is the combination of street, bicycle, pedestrian, and transit networks that serve the mobility and access needs of a community. Analysis of the Fortville transportation network included three primary considerations:

1. Functional Classification
2. Development Character
3. Adjacent Land Use.

Consideration #1 – Functional Classification

Functional classification is a hierarchical scheme for street design based on mobility and access. The three main classes defined by the United States Federal Highway Administration are: local, collector, and arterial. Each class is differentiated by its balance of mobility and access— local roads are high access, low mobility while arterials are low access, high mobility and collector roads provide a relatively balanced approach. There are also multiple functional classification levels defined by purpose at local, regional, and national scales (i.e. the roadways in Fortville may be classified differently by Hancock County than they are classified at the Federal level).

Thus, a local classification system with recommended design standards was established. The project team began by reviewing the Hancock County and Madison County Council of Governments (MCCOG, the metropolitan planning organization for the region) functional classifications. A combination of existing functional classifications, review of projected vehicle miles traveled, and public input provided necessary insight into the possible variation of classification options. The final functional classifications for the Town of Fortville are: primary arterial, secondary arterial, collector, and local roads.

[Primary & Secondary] Arterial Roads

Arterials offer a high level of mobility and serve longer trips to, from, and within communities. A system of arterials connects important community assets such as downtown, industrial facilities, large commercial centers, major subdivisions, and other key activity centers. Mobility of vehicles, pedestrians, and bicyclists along an arterial corridor is their primary function. Arterial roads serve a regional function and are, therefore, designated using a regional perspective. The arterial classification is split into Primary and Secondary Arterial roads. While the design standards are identical, there are higher access control restrictions on primary arterials.

The capacity of arterial roads depends in part on the number of thru lanes, turning lanes, and access points; traffic signalization; and volume

of commercial and passenger traffic. The typical capacity of an arterial is 30,000 vehicles per day. Arterials are generally State or Federal highways which are owned, operated, and maintained by INDOT. However, access to these facilities is managed by the local municipality or the county.

Collector Roads

Collector roads are typically moderate speed (30-45 mph) and balance mobility with access. Collector roads serve a vital role by connecting arterials with local roads and are often integrated into neighborhoods rather than bordering them like arterial roads. Collectors can have an impact on the quality of life and overall livability in the residential areas they serve and pass through. Development character and adjacent land uses are extremely important for collector roads. Through both public input and review of standard design application, it was identified that collector roads are the most practical and supported street for the inclusion of bicycle lanes. The provision of non-motorized facilities, especially on collectors, is vital to a successful active transportation network. Due to the nature of collector roadways at the middle of the classification hierarchy, they typically have the most variable configuration options but still depend heavily on the context of the area they serve.

Local Roads

Local roads limit mobility while maximizing direct access. The simplest example of a local road is a residential street lined with driveways connected to houses. These are the most prevalent roadway within a community, but have the lowest capacity and speeds. Local roads are used mostly for short trips to connect to collector roads and are typically 30 mph or slower. Non-motorist safety, pedestrian and bicycle mobility, and aesthetics are high priorities for the design of local roads. Bicycles typically share local roads with vehicles due to the lower speed and traffic volumes. Finally, on-street parking is almost always available, but not necessarily designated.

Consideration #2 – Development Characteristics

Connect Fortville recognizes two development types: traditional-urban

and hybrid-suburban. These development types help define the context that roadways are being designed and constructed within. As the Town continues to grow, new developments are being proposed in areas that have little to no adjacent existing structures. These areas require fewer design constraints than areas with existing development that should be referenced to minimize negative external impacts. The specific characteristics that typically define an area's development type are further explained below.

Traditional-Urban Character

Traditional-urban areas are defined by their relatively high-density development, mix of residential and commercial uses, gridded street pattern, use of alleys with parking access, and direct pedestrian access from the street. Due to the grid pattern, thru-access for both motorized and non-motorized traffic is emphasized. However, there are issues with roadway hierarchy and overall system optimization due to the relatively higher number of available alternatives with thru-access. The context

sensitive traditional-urban area in Fortville is identified on the Thoroughfare Plan map.

Hybrid-Suburban Character

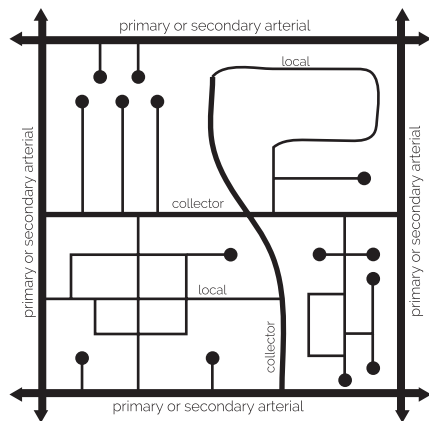
Hybrid-suburban areas typically offer moderate to low-density development, separate residential and commercial uses, have a curvilinear street pattern with cul-de-sacs, face driveways into the street, and include homes with larger setbacks and businesses with parking lots off of roadways. Due to curvilinear street patterns and cul-de-sacs, thru-access and pedestrian circulation is restricted.

Consideration #3 – Adjacent Land Use

In conjunction with development characteristics, adjacent land use has a significant impact on demand and sets the context for roadway design. Connect Fortville categorizes street segments by adjacent land use on

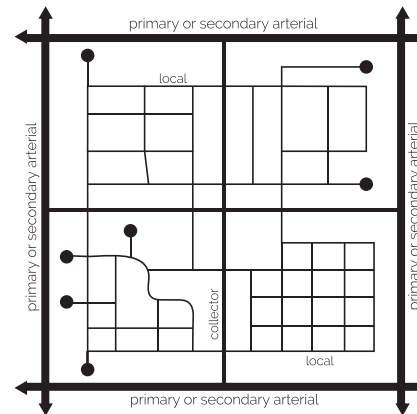
Hierarchical Street Network Design

Not Recommended



- Excessive use of cul-de-sacs, reduces neighborhood connectivity.
- No direction connections between neighborhoods, resulting in a reduction of walkability and unnecessary traffic on collector streets.
- Incomplete collector street, resulting in inefficient traffic movements.
- Direct access on arterial street, resulting in decreased safety and mobility.
- No local street cross access reduces efficiency and safety.

Recommended



- Complete collector system links local roads with arterial roads efficiently.
- Cul-de-sacs used where direct access is unwanted.
- Compact neighborhood blocks increase vehicle connectivity reducing trip lengths.
- Compact neighborhood blocks increase walkability and bikeability.
- Local street cross access creates direct neighborhood access, and increased collector safety and efficiency.

a block by block basis. There are three land uses that impact design elements within this Plan: residential, commercial, and industrial.

Residential Use

Residential streets have attached, detached, and/or multi-family dwelling units near them. Depending on the surrounding development character, residential streets may also have neighborhood commercial, churches, and parks throughout.

Commercial Use

Commercial streets include retail and office establishments, such as restaurants, shopping areas, and business parks. Typically, commercial areas are concentrated along corridors, within the central business district/ downtown, or at major intersections.

Industrial Use

Industrial streets pass through manufacturing, warehousing, and distribution activities which generate heavy truck and employee traffic. These areas tend to be high intensity uses that require significant infrastructure for supporting major activity.

An aerial photograph of a town, likely Fortville, Indiana, showing a mix of residential houses, commercial buildings, and a large parking lot. A prominent water tower is visible in the upper right corner. The town is surrounded by green trees and fields.

Policies

The Thoroughfare Plan policies identify the criteria Four different areas of policy are included in this section and directly relate to the four guiding principles of this plan: safe, convenient, economic, and inclusive.

Safe System Policies

1. Traffic Calming

Design elements will be utilized that calm traffic to preserve the livability and safety of neighborhood streets.

Best practice indicates several design features that are necessary to create a livable street beyond a posted speed limit sign. The goal of traffic calming is to design streets to limit undesirable thru-traffic and speeding, which impedes the ability of the Town to maintain a safe and livable neighborhood.

Traffic calming can include the following elements:

- Narrow lane widths
- Speed bumps
- Street trees
- On-street parking (permissive or dedicated)
- Alternative pavement materials (brick pavers and stamped concrete)

2. Two-Way Left Turn Lanes

Two-way left turn lanes will be used as part of a three- or five-lane street configuration over the undivided, four-lane option.

New streets should always be designed and constructed for the anticipated travel demand, as well as any necessary operational considerations, such as turning movements. Two-way left turn lanes reduce vehicle and pedestrian conflict points, reduce sideswipe and rear-end collisions, calm traffic, and increase operational efficiencies during peak conditions. The use of two-way left turn lanes should be limited to collector level streets and arterial streets.

Two-way left turn lanes should be provided where:

- Widening the street to accommodate a planted median is not feasible
- Widening the street would detrimentally impact the context of the



Figure 01 - Alternative pavement materials slow traffic and promote community identity.



Figure 02 - Two-way left turn lanes offer improved access without impeding thru traffic.



Figure 03 - Planted medians improve quality of place.



Figure 04 - Modern roundabouts are proven to increase safety.

- area
- Numerous driveways or tightly spaced intersections are located along the corridor

3. Modern Roundabouts

Modern roundabouts will be considered the preferred treatment option for intersections.

The modern roundabout is included as one of the Federal Highway Administration's (FHWA) nine proven safety countermeasures for significant safety improvements beyond the standard stop-controlled intersection. The geometry of modern roundabouts results in lower speeds and fewer conflict points, which create substantial safety advantages. Additionally, the channelization and circulatory procedure improves operational efficiency. However, it is not always practical or feasible to install roundabouts without negatively impacting area context. The context and impact on neighborhoods should be considered before a modern roundabout is designed and installed.

4. Access Control

Access management will be implemented to control and limit negative land development impacts.

Access management is the coordinated planning, regulation, and design of access between roadways and physical land development. The primary goal of access management is to promote and preserve the efficient and safe movement of people and goods by reducing the total number of conflict points within and between modes of transportation. Without access management, the function and character of primary arterial corridors will deteriorate rapidly. Allowing safe and efficient operations to deteriorate with the assumption that the transportation system can be continuously replaced, widened, or reconstructed in the future is not practical, nor does it promote an efficient use of public resources.

Examples of access control strategies:

- Median treatments

- Right-in, right-out access
- Shared driveway policies
- Cross access easements

Allowing frequent driveways, median openings, and traffic signals will reduce safety and increase traffic congestion. These applications place the traveling public at greater risk of injury and death and will decrease the overall reliability of the transportation system. An Access Management Ordinance should be adopted to further encourage a safe and efficient transportation system.

Access Management Ordinances regulate the following:

- Signalized/improved intersection spacing
- Driveway cuts within the intersection influence zone
- Driveway spacing

Convenient System Policies

1. Stub Streets (i.e. Temporary Dead-End Streets)

Stub streets will be used to support future network connectivity, such as subdivision expansion.

Traditional subdivision designs result in cul-de-sacs, which lead to neighborhood isolation and network overloading from too many local streets feeding onto collectors or directly onto arterials at a limited number of intersections. Stub streets are temporary dead-end streets that terminate at the boundary of a subdivision or site plan to resolve this issue. Subdivision development is in high demand and development standards should be elevated to foster overall community and system connectivity through the application of stub streets.

2. Permanent Dead-End Streets (i.e. cul-de-sacs)

Permanent dead-end streets, such as cul-de-sacs, will be considered undesirable and should be avoided except in limited situations.

Permanent dead-end streets are typically used to avoid the cost of bridging



Figure_ 05- Right-in, Right-out (RIRO) with bicycle cut-throughs.



Figure 06 - Stub streets allow future roadway expansion.



Figure_ 07- On-street parking with bump outs to shorten pedestrian crossing distances.

waterways, dealing with topographic issues, or allowing additional homes to be constructed at the boundary of subdivisions. The use of permanent dead-end streets results in poor network connectivity and accessibility issues for emergency services. To limit the number of permanent dead-end streets, impact fees should be collected for future neighborhood connections. Permanent dead-end streets can, however, be used in instances where it would be harmful to extend the roadway; such as where a local road would be directly accessing an arterial, especially an arterial with higher access control standards.

3. On-Street Parking

On-street parking will be provided on local and collector level streets where access to land and businesses is desired and not on primary or secondary arterial streets where mobility for all road users must be prioritized and preserved.

On-street parking can play a vital role in supporting local businesses and allowing residential flexibility. The decision to remove or restrict on-street parking on local or collector streets should be considered within the context of the surrounding area. The installation of parking meters should also be encouraged in areas where higher turnover rates are desirable, such as downtown, to support small business.

Considerations for the provision of on-street parking on local or collector streets:

- Adequate provision off-street parking
- Anticipated or current density of the development and surrounding area
- Setback distance of the building
- Secondary benefits of on-street parking, such as pedestrian or bicyclist comfort
- Emergency vehicle access
- Existing parking restrictions

Economic System Policies

1. Economic Development

The transportation network design and improvement strategies will support growth and economic development.

The transportation network is directly tied to economic development and plays a vital role in a community's ability to attract, retain, and expand businesses. It is important that the Thoroughfare Plan account for future growth potential and set the functional classification hierarchy to support the addition of businesses and jobs for the next 25 years. To this end, the Thoroughfare Plan offers multiple design options based on the intended focus of roadways for residential, commercial, or industrial purposes. Each use has slightly varying needs that are reflected in the final design matrices.

2. Traditional Neighborhood Development

Concepts from Traditional Neighborhood Development will be applied to manage growth and maintain the Town character as residential development expands within and around the traditional-urban context zone.

Fortville is on the outskirts of the Indianapolis Metropolitan Region and aims to maintain its small-town character as suburban development encroaches. The concept of Traditional Neighborhood Development (TND) was created to combat sprawl by returning to the essential elements of neighborhoods, people and human interaction, instead of isolation and automobiles.

TND is modeled after pre-1945 development patterns; it supports a mixture of housing types and land uses, multi-modal transportation systems, and compact neighborhood design with higher densities than standard subdivisions. TND is also typically concentrated around a core activity center, such as a school, that functions as the gathering space for residents.



Figure 09 - Extension of SR 13 potential economic development area.



Figure 10 - TND creates compact neighborhoods with greater community access.



Figure 11 - Complete street with balanced access for motorized & non-motorized traffic.

Communities interested in upholding the principles of TND should consider the adoption of a TND zoning ordinance or creation and amendment of a TND zoning district into the existing ordinance. While omitting the design guidelines contained in most TND ordinances, a stand-alone TND zoning district still mandates better street and sidewalk design, mixed housing types, and objective building controls. A sample TND zoning district ordinance from Powder Springs, Georgia is provided in Appendix XX.

3. Right-of-Way Dedication

Public-private partnerships through right-of-way dedication will be used for future transportation network improvements and expansion.

The dedication of right-of-way from a developer or individual to the municipality is vital for mitigating costs associated with construction and improvement of streets that are required for successful development of the land. The proper maintenance and management of the transportation network requires a partnership between private and public interests to support the system outlined within this Plan and ROW dedication is a key tool for transferring responsibility between the two.

The Town of Fortville Thoroughfare Plan establishes the intended functional classification of Fortville's roadways, with consideration for ideal spacing and hierarchical connections. To attain and maintain the functional integrity of the street system, it is important that the necessary ROW is acquired. It is unlikely to be obtained all at once and therefore depends on an established Right-of-Way Dedication policy to permit incremental acquisition. ROW Dedication requires the transfer of property and maintenance rights from a private entity to the municipality once construction meets the adopted street design standards. In conjunction with impact fees, this allows the community to maintain the overall system design and operational integrity.

Inclusive System Policies

1. Complete Street Systems

The Complete Streets' approach to design will be utilized to provide for

the needs of all roadway users and modes.

Streets are a vital component of the transportation network and have always provided the means for connecting people, places, and ideas. However, as the automobile transitioned into the central focus of our transportation network, the design of our streets became incomplete; the walk, bike, transit, and other modes were no longer accounted for. Right-of-way design components go beyond vehicle travel lanes; including, but not limited to, provision for bicycle lanes, drainage, utilities, sidewalks, street trees, on-street parking, signage, and lighting. This multi-modal, comprehensive approach, best reflects the community desire for a complete transportation system.

Community design practices have shifted to the point of requiring justification for additional project costs associated with non-automobile elements. To further support complete streets throughout the entire design process, Fortville can consider the adoption of a Complete Streets Ordinance. A Model Ordinance developed by the Indiana Complete Streets Coalition is included in Appendix XX. Essentially, Complete Streets policies intend to return balance to the transportation system by flipping the burden to require justification for not including multi-modal elements that create a holistic design to support all modes.

2. Accessibility

Improvements and expansion of the transportation network will incorporate design for all users by following the requirements of the Americans with Disabilities Act (ADA).

The design and construction of all streets and roadway elements should follow the ADA and Public Rights-of-Way Accessibility Guidelines (ADAAG and PROWAG, respectively). These guidelines support the equitable design of public facilities to ensure accessibility for persons with physical challenges as defined by the ADA and Indiana Accessibility Code.

3. Integrated Transportation Systems

A balanced transportation system will be maintained by incorporating



Figure 12 - ADA Compliant Sidewalk with zebra-striped crosswalk.



Figure 13 - Multi-use paths provide recreational opportunities.



Figure 14 - Sharrow identifying cyclist presence likely.



Figure 15 - Street trees separating sidewalk from roadway.

elements that support the integration of multiple modes.

Each functional classification provides different features to encourage walking and biking as well as supporting vehicular traffic; thus, allowing a single trip to easily incorporate multiple modes. The design and application of sidewalks, bicycle lanes, sharrows, and multi-use paths is vital to a successfully balanced transportation system. Guidance for the design of bicycle and pedestrian facilities can be found through organizations such as the American Association of State Highway and Transportation Officials (AASHTO) and the National Association of City Transportation Officials (NACTO).

The Thoroughfare Plan acknowledges that it can be cost prohibitive to install a complete bicycle and pedestrian network at once, especially in areas where retrofitting would be necessary. Roadway construction and reconstruction projects provide a significant opportunity to incrementally create the complete network for a comprehensive multi-modal transportation system. Special care should be taken to ensure that the interaction of all road users and future connection opportunities are accounted for throughout the design process.

4. Street Trees and Other Landscaping

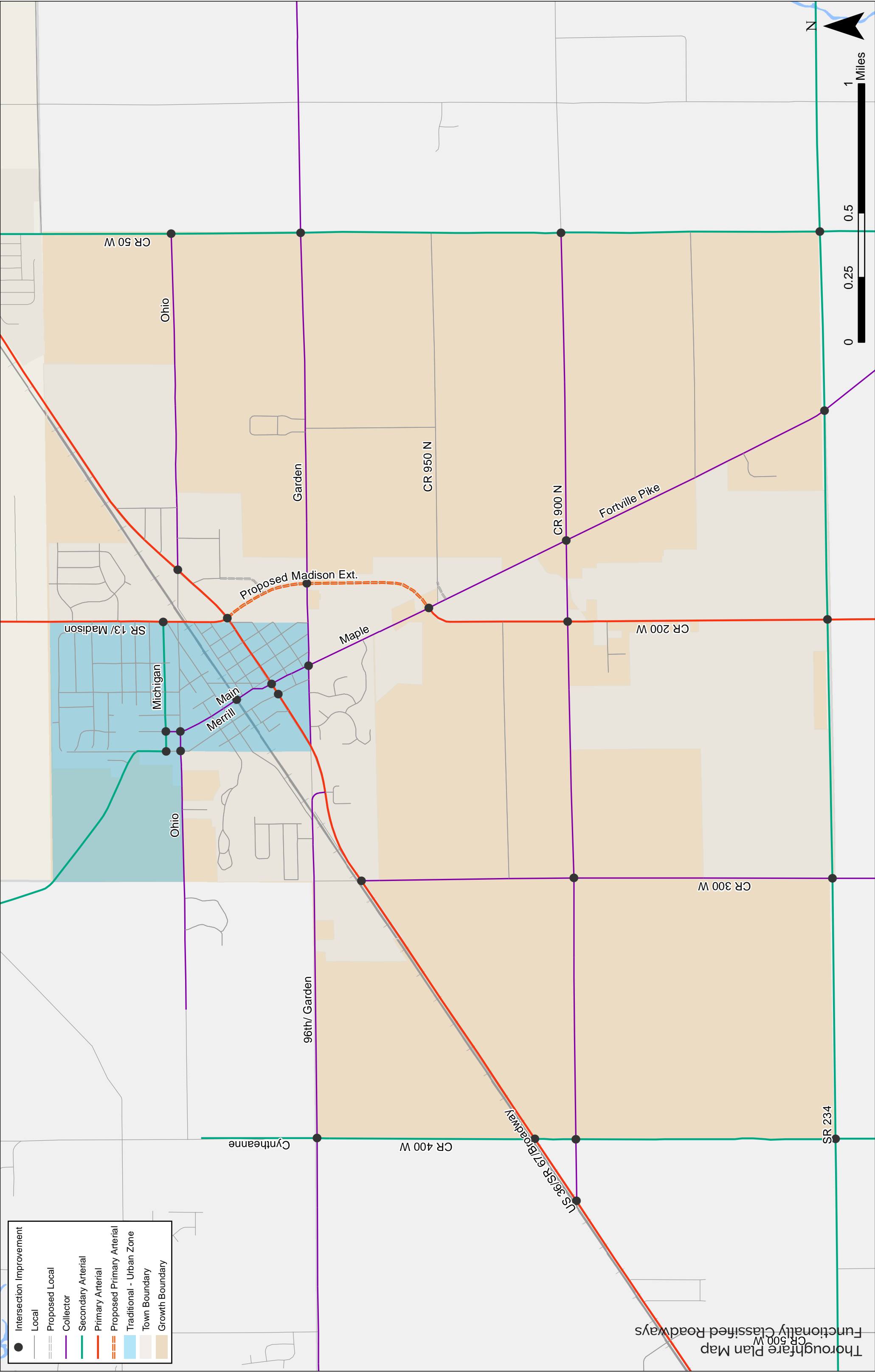
Planting strips between sidewalks and roadways, as well as within medians, will be included in all street network designs where feasible.

Street trees provide shade for pedestrians, cyclists, and parked vehicles; calm traffic, especially on local roads; and add insulation between motorized and non-motorized traffic. The installation of street trees should be carefully planned to not limit site distances or cause issues with utilities and maintenance. Depending on the width of the planting strip, the specific tree species used should be carefully selected to avoid damaging adjacent facilities. Other landscaping elements such as street lights, grass planting strips, bricking, etc. can also be options for consideration in both medians and planting strips.



Plan

The final result of community input, system analysis, and policy application will be considered in the development of Connect Fortville. Following standard recommended practice, arterials are spaced at approximately one mile apart and balanced across the north, east, south, and west portions of the projected growth area. Primary arterials directly split the planning area and connect via Broadway Street and Madison Street / N CR 200 W. Collectors are evenly spaced to effectively distribute local roadway traffic, while enhancing neighborhood connections and supporting commercial activity. Also indicated on the functional classification map are proposed intersection improvements that are likely to be needed over the planning horizon.



Design Matrices & Typicals

Connect Fortville classifies roadways by three main functions: local, collector, or arterial depending on the balance of access and mobility as previously described. Similar to the analysis section, the application of design standards varies by context in addition to functional classification. Both public input and guidance by the steering committee, highlighted the importance of design being context sensitive. Thus, development character and adjacent land use also impact design standards. The breakdown by function, character, and adjacent land use results in 24 combinations of roadway types.

There are limitations to right-of-way within downtown Fortville (traditional-urban) that are not present in new development. To preserve and appropriately extend the historic character of downtown proposed right-of-way within the context zone reflects these limitations. The breakdown by adjacent land use also ensures appropriate design solutions. For example, roadways adjacent to industrial uses are less likely to need parking spaces than roadways adjacent to commercial or residential uses. To clarify the distinctions between each roadway type, this plan includes design matrices that can be referenced for a more detailed understanding.

Each design matrix includes transportation and design elements that impact the total minimum right-of-way required, as well as identifying policy components to be considered. For example, there are six (6) local roadway typologies that vary from a minimum of 48 feet to 55 feet of right-of-way. The difference between two categories can be as simple as unmarked versus marked parking (i.e. hybrid-suburban residential versus hybrid-suburban commercial). However, it is important to note the number of combinations and the relevant design aspects of each category. The design matrices should act as a reference when establishing design standards, but only illustrates the minimum requirements and does not represent every combination of possible options.

Following each design matrix are cross-sections illustrating the typical configuration for each category. Again, while these do not represent all possible combinations, they do highlight the width of both transportation and design elements that determine the minimum right-of-way width required and illustrate the differences between roadway types.

Transportation Elements	Street Classification: Local					
	Hybrid - Suburban			Traditional - Urban		
	Residential	Commercial	Industrial	Residential	Commercial	Industrial
Traffic Lanes:						
Lane width	8	8	12	8	8	12
Min. thru lanes	2	2	2	2	2	2
Max. thru lanes	2	2	2	2	2	2
Parking (one/both sides):	Required	Permitted	-	Required	Permitted	-
On-street parking	Required	Permitted	-	Required	Permitted	-
Parallel parking	Permitted	Permitted	-	Permitted	Permitted	-
Angle parking	Conditional	Conditional	-	Conditional	Conditional	-
Width per side	4 4	6 0	-	4 4	6 0	-
Curb & Gutter:	Required	Required	Required	Required	Required	Required
6" Chair back	Required	Required	Required	Required	Required	Required
8" Chair back	Conditional	Conditional	Conditional	Conditional	Conditional	Conditional
Width per side	2	2	2	2	2	2
Pedestrian Facilities:	Required	Required	Required	Required	Required	Required
Material - concrete	Required	Required	Required	Required	Required	Required
Material - asphalt, pavers	Conditional	Conditional	Conditional	Conditional	Conditional	Conditional
Minimum width	5	5	5	5	5	5
Bicycle Facilities:	Conditional	Conditional	Conditional	Conditional	Conditional	Conditional
Pavement marking	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted
Minimum buffer width	-	-	-	-	-	-
Minimum width	-	-	-	-	-	-
Policy Components:						
Access Control	-	-	-	-	-	-
Speed zone (mph)		20-30			20-30	

Limitations set to encourage mobility & safety

Bike lanes or sharrows

Sidewalk or multi-use path

Note:

1. Additional ROW in collector is to be used for permitted or conditional uses
2. Planting Strips greater than 7 feet will have street trees
3. Access Control will be mandatory on primary arterial

Design Elements	Street Classification: Local					
	Hybrid - Suburban			Traditional - Urban		
	Residential	Commercial	Industrial	Residential	Commercial	Industrial
Planting Strip:						
Street Trees	Required	Required	Required	Required	Required	Required
Minimum width	8	8	8	5	5	5
Lighting:	Required	Required	Required	Required	Required	Required
Dusk to dawn lighting	Required	Required	Required	Required	Required	Required
Medians/TWTL:	-	-	-	-	-	-
Chair back curbs	-	-	-	-	-	-
Median trees	-	-	-	-	-	-
Drainage	-	-	-	-	-	-
Lighting	-	-	-	-	-	-
Minimum width	-	-	-	-	-	-
Pavement Markings:						
Centerlines	-	Required	Required	-	Required	Required
Edge lines	-	Permitted	Permitted	-	Permitted	Permitted
Parking spaces	Permitted	Required	-	Permitted	Required	-
Stop bars	Required	Required	Required	Required	Required	Required
Transportation + Design Total ROW						
ROW Width:	One foot wider than sum of all elements					
Minimum width	55	55	55	48	48	48
Maximum width	-	-	-	48	48	48

6" utility buffer on each side of ROW

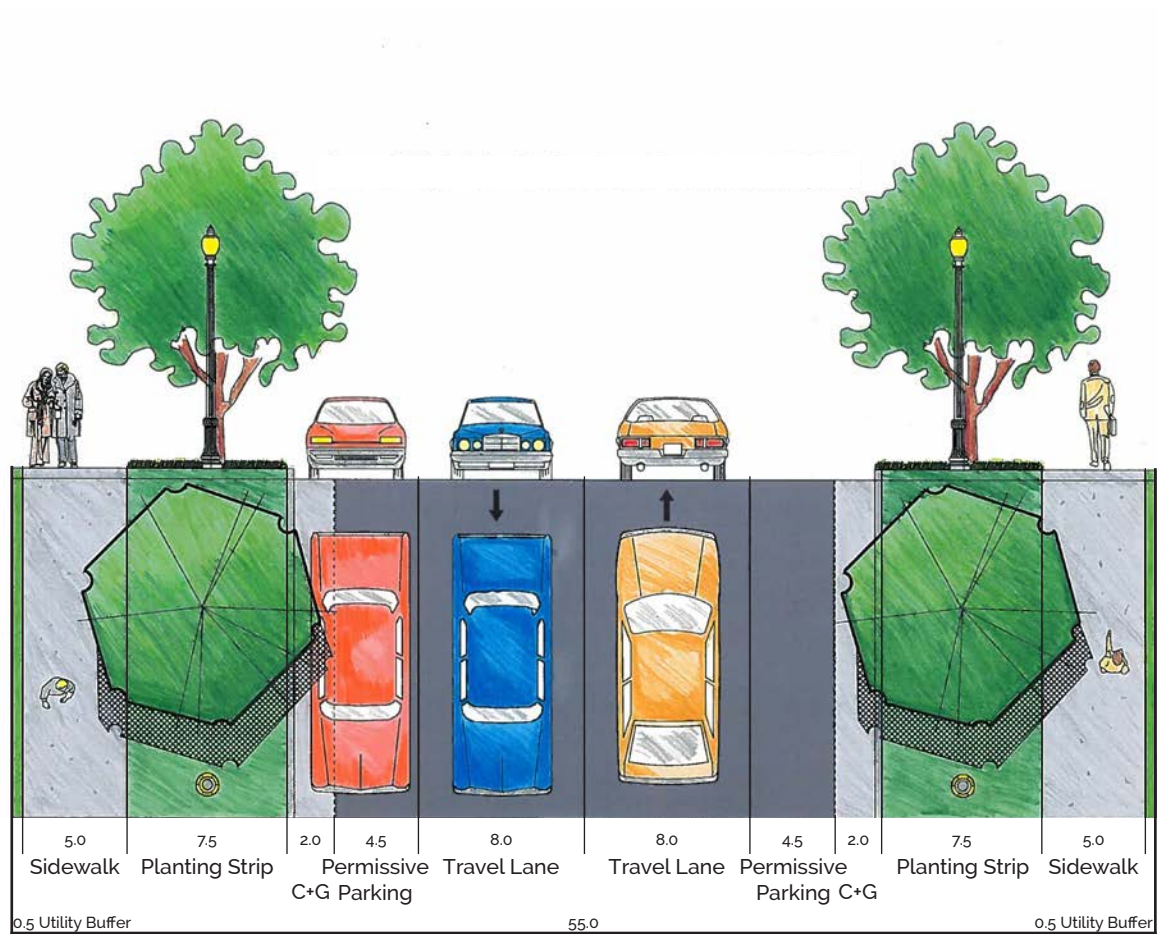
Maximum necessary in context zone

Transportation Elements	Street Classification: Local					
	Hybrid - Suburban			Traditional - Urban		
	Residential	Commercial	Industrial	Residential	Commercial	Industrial
Traffic Lanes:						
Lane width	8	10	12	8	10	12
Min. thru lanes	2	2	2	2	2	2
Max. thru lanes	2	2	2	2	2	2
Parking (one/both sides):	Required	Required	-	Required	Required	-
Permissive parking	Required	-	-	Required	-	-
Parallel parking	Permitted	Permitted	-	Permitted	Permitted	-
Angle parking	Conditional	Conditional	-	Conditional	Conditional	-
Width per side	4.5 4.5	6 0	-	4.5 4.5	6 0	-
Curb & Gutter:	Required	Required	Required	Required	Required	Required
6" Chair back	Required	Required	Required	Required	Required	Required
8" Chair back	Conditional	Conditional	Conditional	Conditional	Conditional	Conditional
Width per side	2	2	2	2	2	2
Pedestrian Facilities:	Required	Required	Required	Required	Required	Required
Material - concrete	Required	Required	Required	Required	Required	Required
Material - asphalt, pavers	Conditional	Conditional	Conditional	Conditional	Conditional	Conditional
Minimum width	5	5	5	5	5	5
Bicycle Facilities:	Conditional	Conditional	Conditional	Conditional	Conditional	Conditional
Pavement markings	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted
Minimum buffer width	-	-	-	-	-	-
Minimum width	-	-	-	-	-	-
Policy Components:						
Access Control	-	-	-	-	-	-
Speed zone (mph)		20-30			20-30	

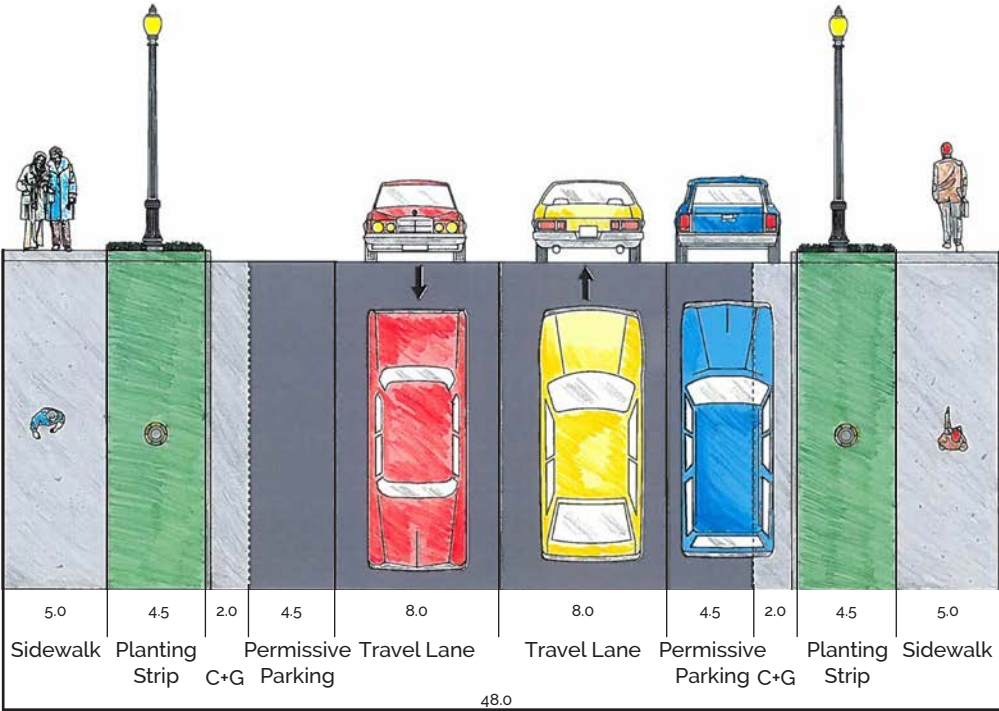
Design Elements	Street Classification: Local					
	Hybrid - Suburban			Traditional - Urban		
	Residential	Commercial	Industrial	Residential	Commercial	Industrial
Planting Strip:	Required	Required	Required	Required	Required	Required
Street Trees	Required	Required	Required	Conditional	Conditional	Conditional
Minimum width	7.5	7	8	4.5	4	5
Lighting:	Required	Required	Required	Required	Required	Required
Dusk to dawn lighting	Required	Required	Required	Required	Required	Required
Medians/TWLT:	-	-	-	-	-	-
Chair back curbs	-	-	-	-	-	-
Median trees	-	-	-	-	-	-
Drainage	-	-	-	-	-	-
Lighting	-	-	-	-	-	-
Minimum width	-	-	-	-	-	-
Pavement Markings:						
Centerlines	-	Required	Required	-	Required	Required
Edge lines	-	Permitted	Permitted	-	Permitted	Permitted
Parking spaces	Permitted	Required	-	Permitted	Required	-
Stop bars	Required	Required	Required	Required	Required	Required

Transportation + Design Total ROW	Hybrid - Suburban			Traditional - Urban		
	Residential	Commercial	Industrial	Residential	Commercial	Industrial
ROW Width:	One foot wider than sum of all elements					
Minimum width	55	55	55	48	48	48
Maximum width	-	-	-	48	48	48

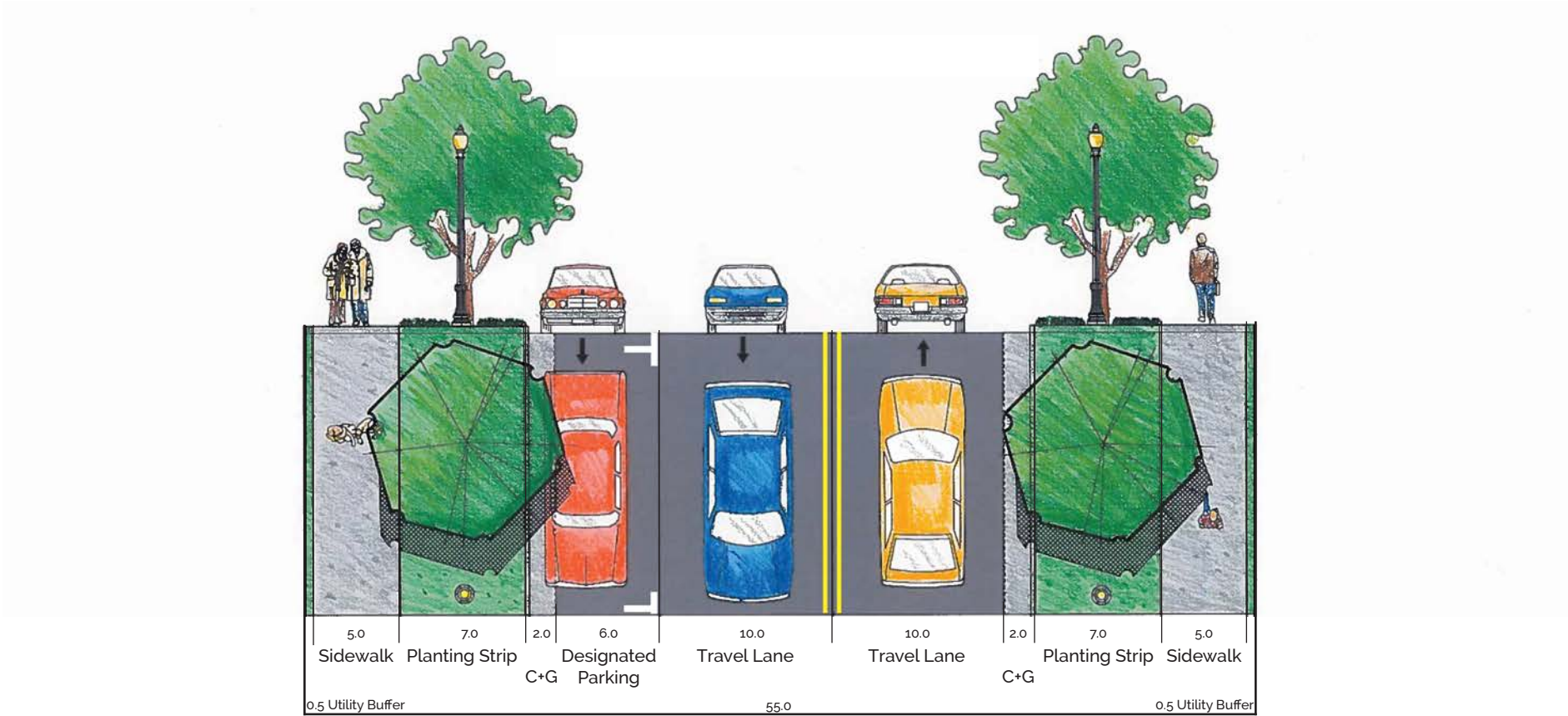
Local Hybrid-Suburban Residential (55')



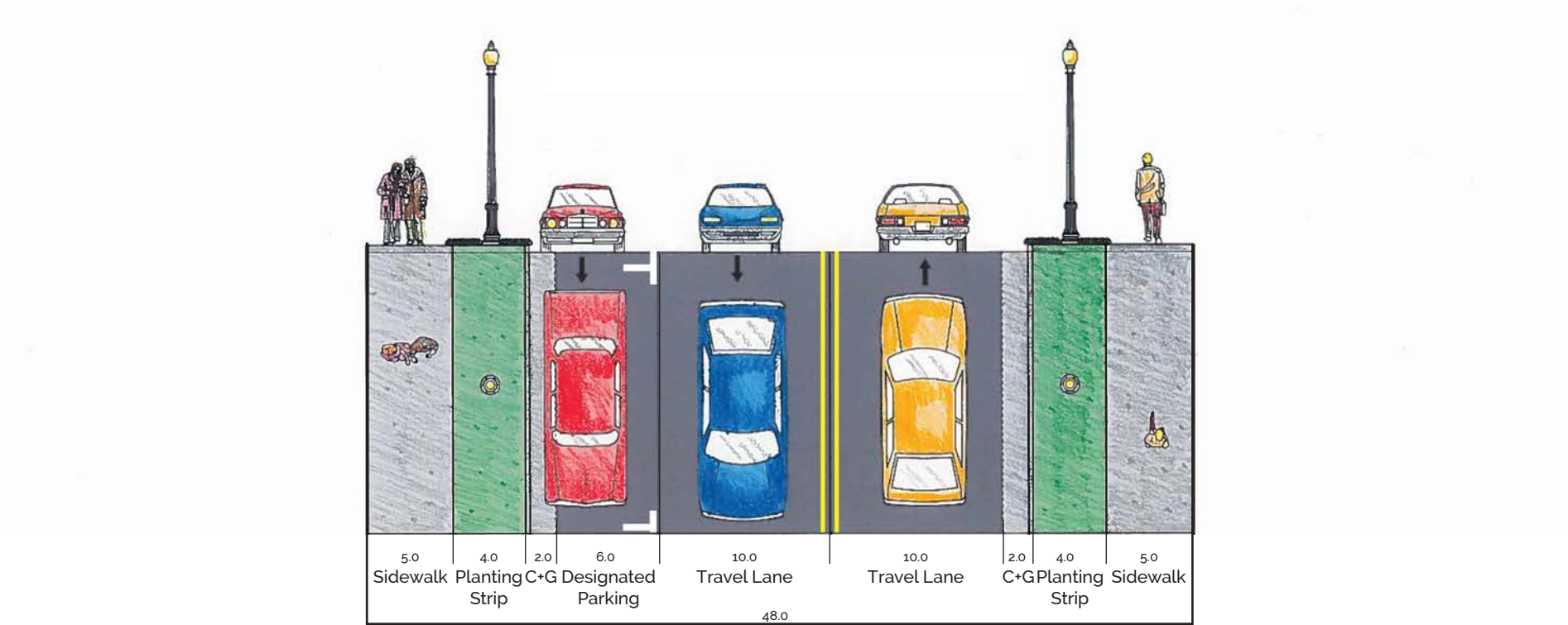
Local Traditional-Urban Residential (48')



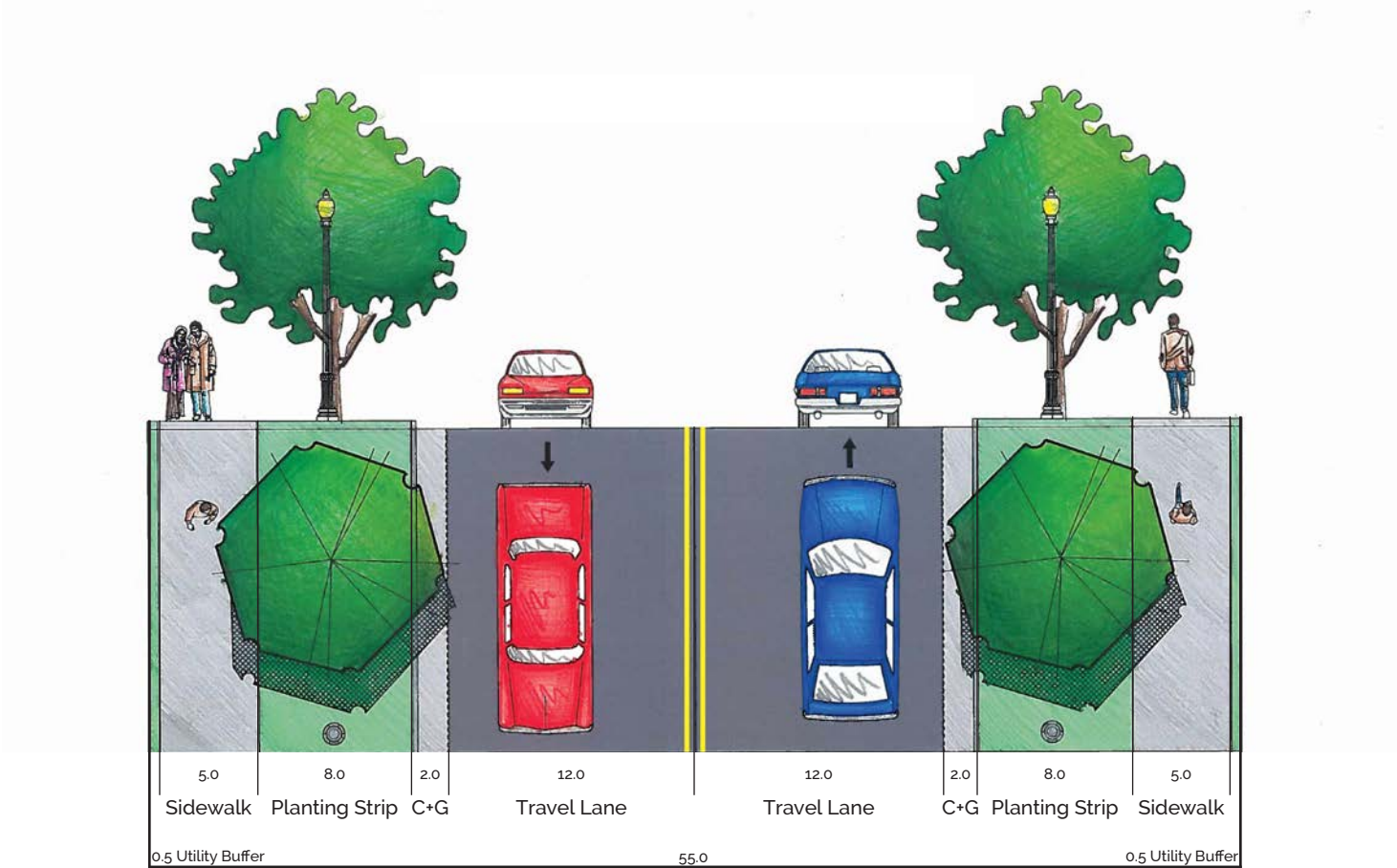
Local Hybrid-Suburban Commercial (55')



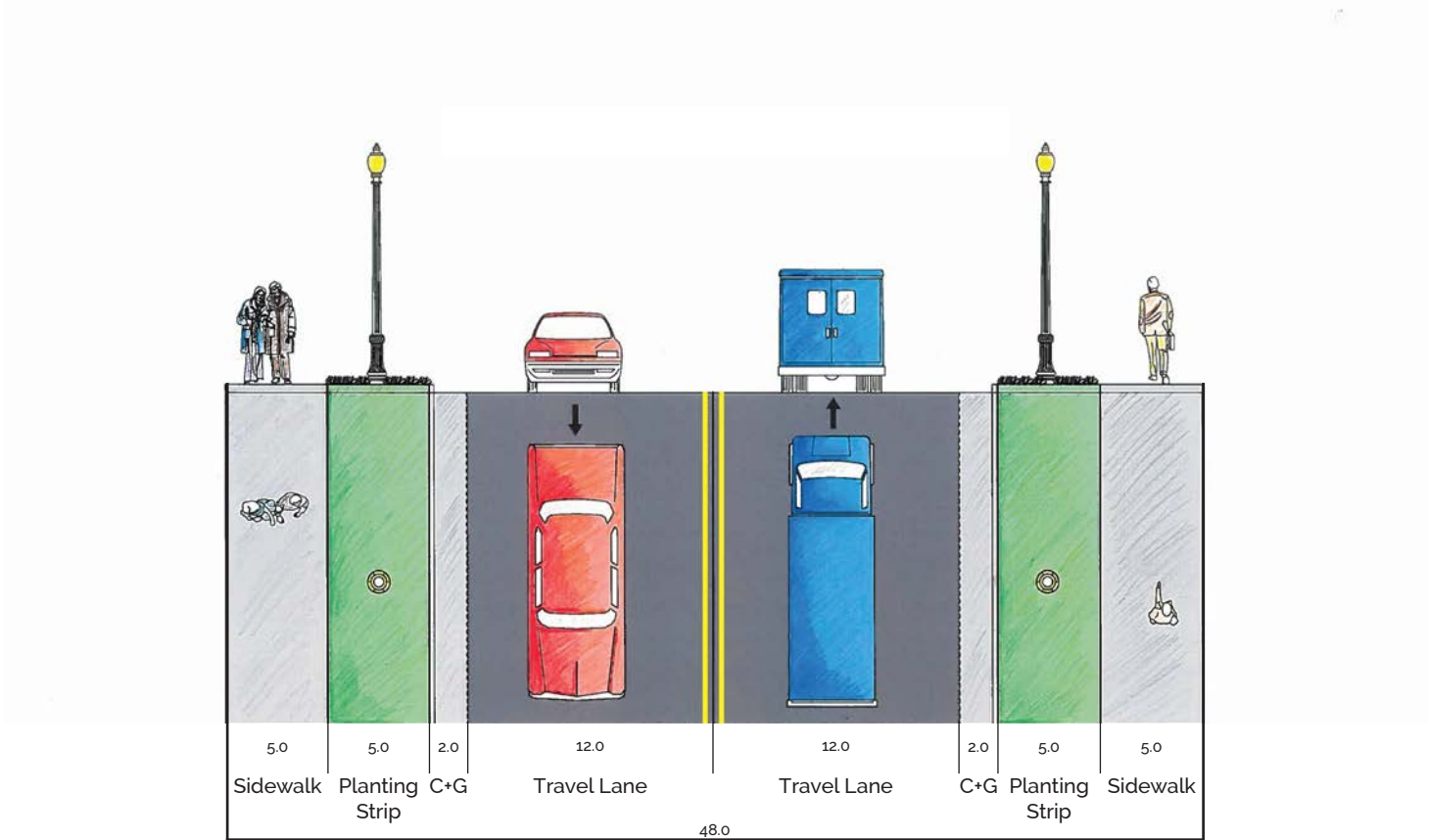
Local Traditional-Urban Commercial (48')



Local Hybrid-Suburban Industrial (55')



Local Traditional-Urban Industrial (48')

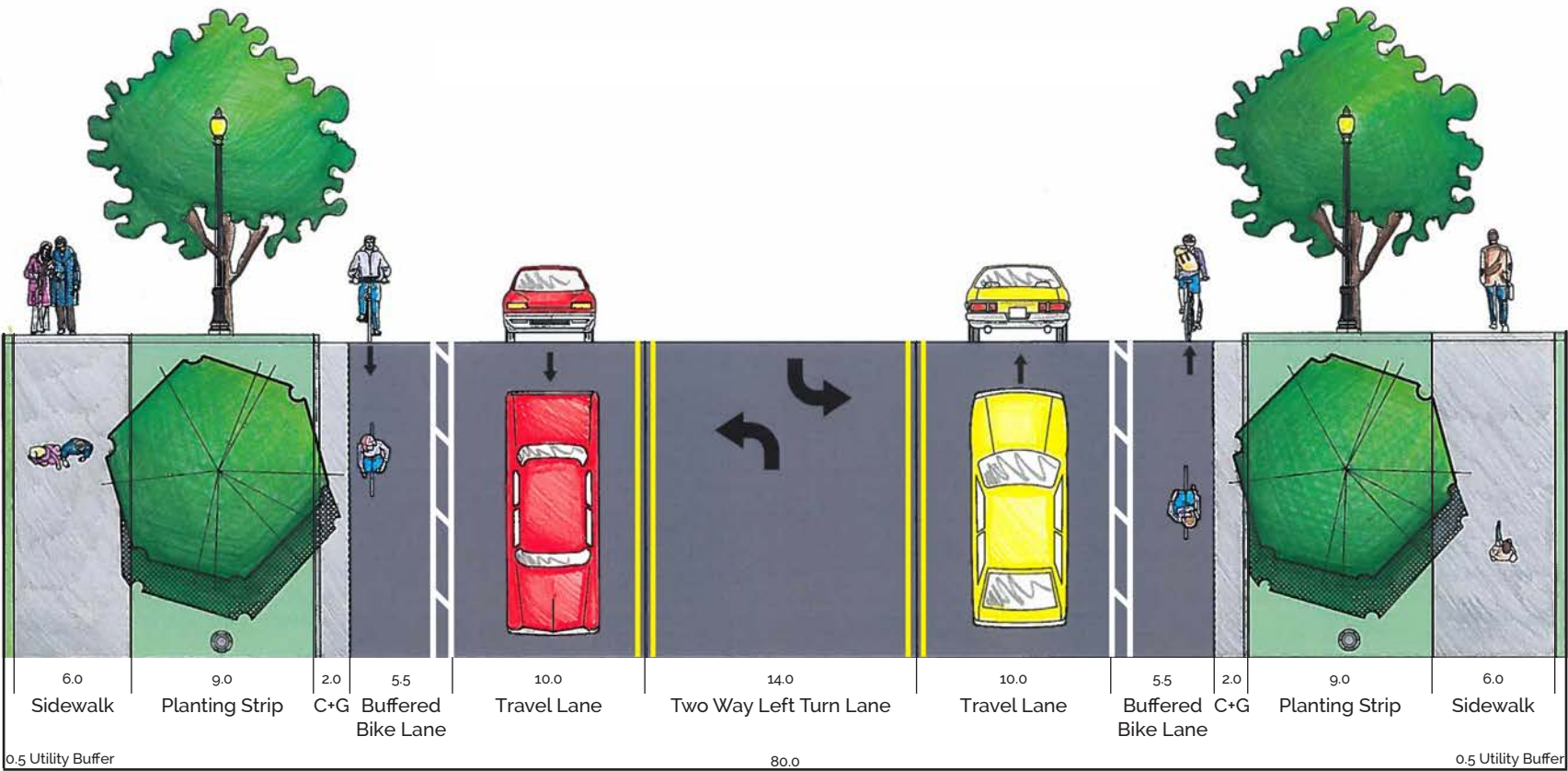


Transportation Elements	Street Classification: Collector					
	Hybrid - Suburban			Traditional - Urban		
	Residential	Commercial	Industrial	Residential	Commercial	Industrial
Traffic Lanes:						
Lane width	10	10	12	10	10	12
Min. thru lanes	2	2	2	2	2	2
Max. thru lanes	2	2	2	2	2	2
Parking (one/both sides):	Conditional	Permitted	-	Conditional	Permitted	-
Permissive parking	Conditional	-	-	Conditional	-	-
Parallel parking	Conditional	Permitted	-	Conditional	Permitted	-
Angle parking	Conditional	Conditional	-	Conditional	Conditional	-
Width per side	6 0	6 6	-	6 0	6 0	-
Curb & Gutter:	Required	Required	Required	Required	Required	Required
6" Chair back	Required	Required	Required	Required	Required	Required
8" Chair back	Conditional	Conditional	Conditional	Conditional	Conditional	Conditional
Width per side	2	2	2	2	2	2
Pedestrian Facilities:	Required	Required	Required	Required	Required	Required
Material - concrete	Required	Required	Required	Required	Required	Required
Material - asphalt, pavers	Conditional	Conditional	Conditional	Conditional	Conditional	Conditional
Minimum width	6	10	10	5	5	5
Bicycle Facilities:	Required	Permitted	Permitted	Required	Permitted	Permitted
Pavement markings	Required	Required	Required	Required	Required	Required
Minimum buffer width	1	1	1	1	1	1
Minimum width	4.5	4	4	3	4	4
Policy Components:						
Access Control	Conditional	Conditional	Conditional	-	-	-
Speed zone (mph)		30-35			20-35	

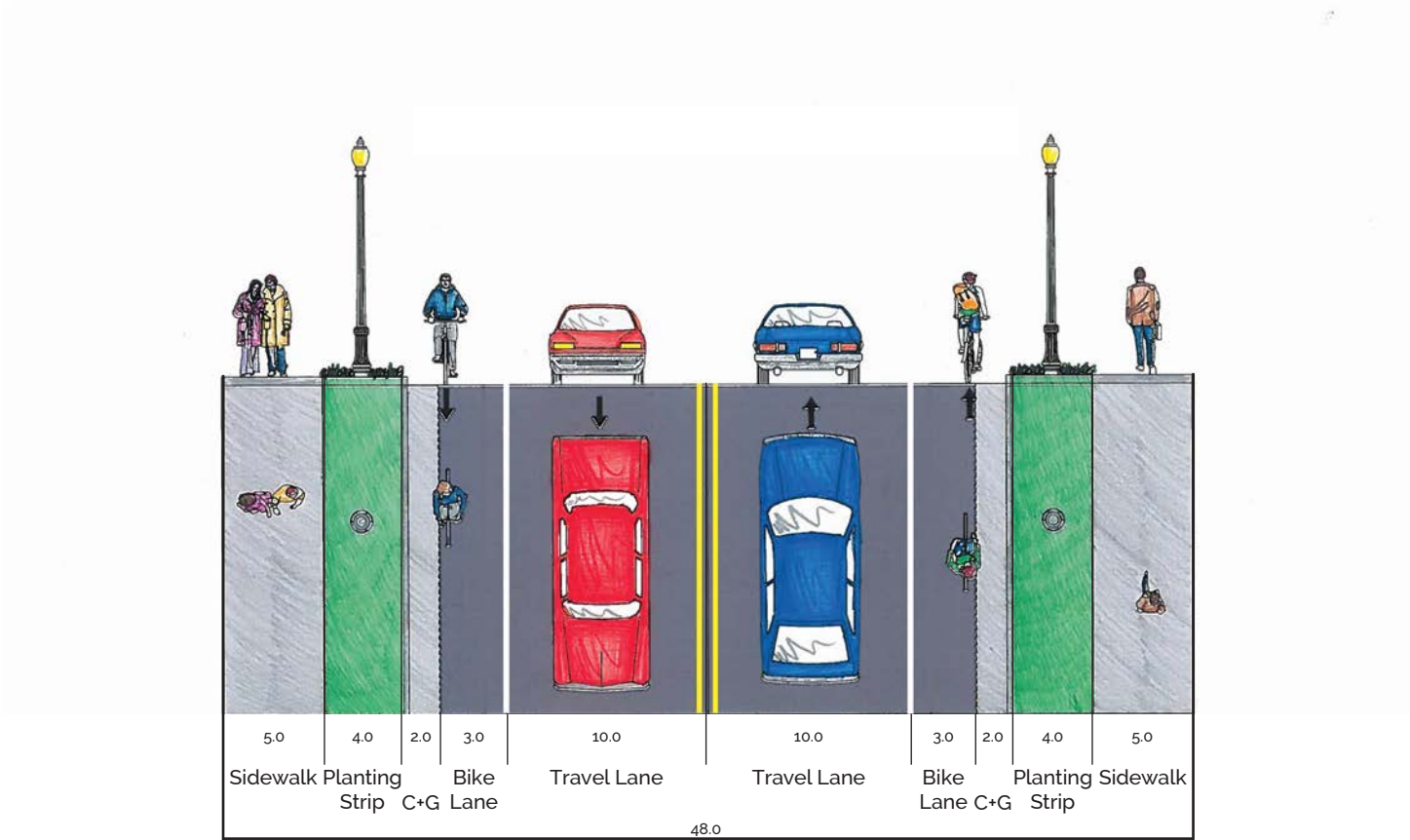
Design Elements	Street Classification: Collector					
	Hybrid - Suburban			Traditional - Urban		
	Residential	Commercial	Industrial	Residential	Commercial	Industrial
Planting Strip:	Required	Required	Required	Required	Required	Required
Street Trees	Permitted	Permitted	Required	Conditional	Conditional	Conditional
Minimum width	9	4.5	8	4	4	5
Lighting:	Required	Required	Required	Required	Required	Required
Dusk to dawn lighting	Required	Required	Required	Required	Required	Required
Medians/TWLT:	Required	Required	Required	-	Conditional	Conditional
Chair back curbs	Required	Required	Required	-	Required	Required
Median trees	Permitted	Permitted	Permitted	-	Permitted	Permitted
Drainage	Permitted	Permitted	Permitted	-	Permitted	Permitted
Lighting	Permitted	Permitted	Permitted	-	Permitted	Permitted
Minimum width	14	14	15	-	12	12
Pavement Markings:						
Centerlines	Required	Required	Required	Required	Required	Required
Edge lines	-	Permitted	Permitted	-	Permitted	Permitted
Parking spaces	Permitted	Required	-	Permitted	Required	-
Stop bars	Required	Required	Required	Required	Required	Required

Transportation + Design Total ROW	Hybrid - Suburban			Traditional - Urban		
	Residential	Commercial	Industrial	Residential	Commercial	Industrial
ROW Width:	One foot wider than sum of all elements					
Minimum width	80	80	80	48	48	48
Maximum width	-	-	-	48	78	78

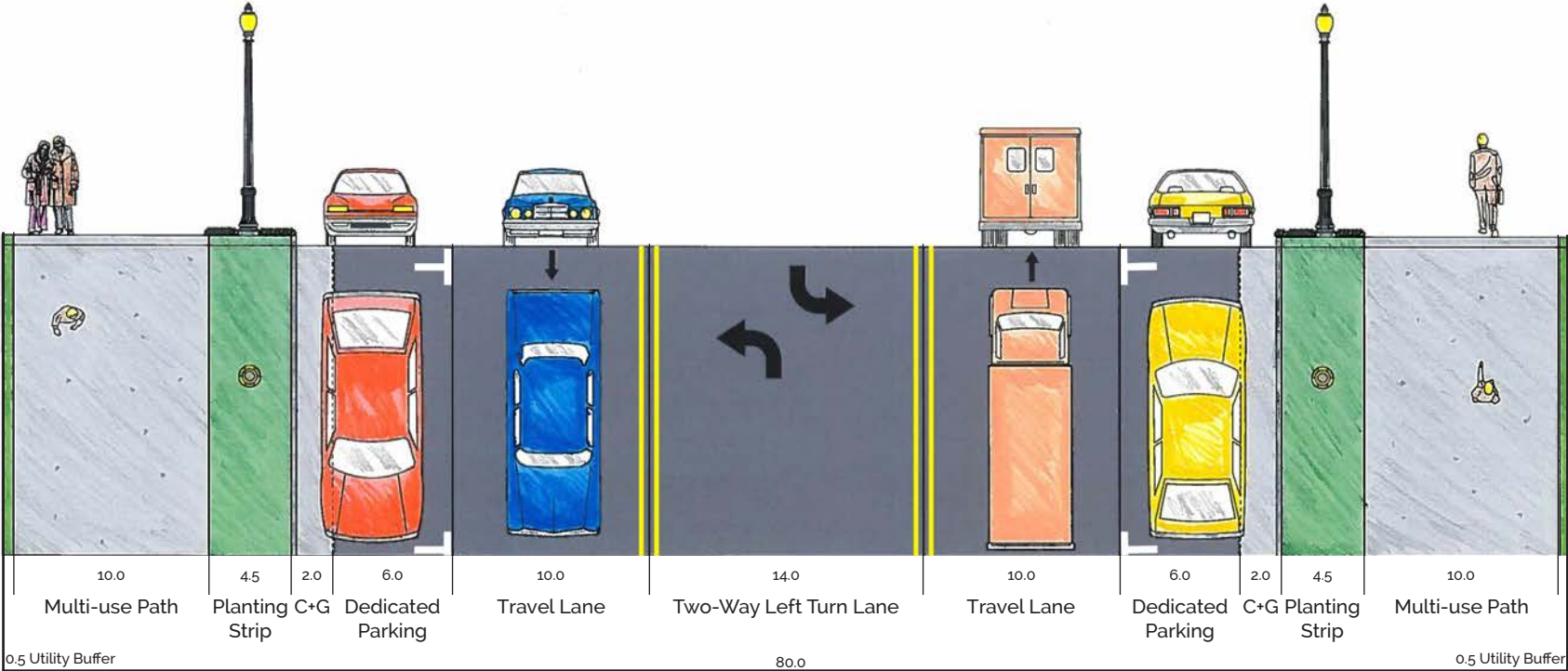
Collector Hybrid-Suburban Residential (80')



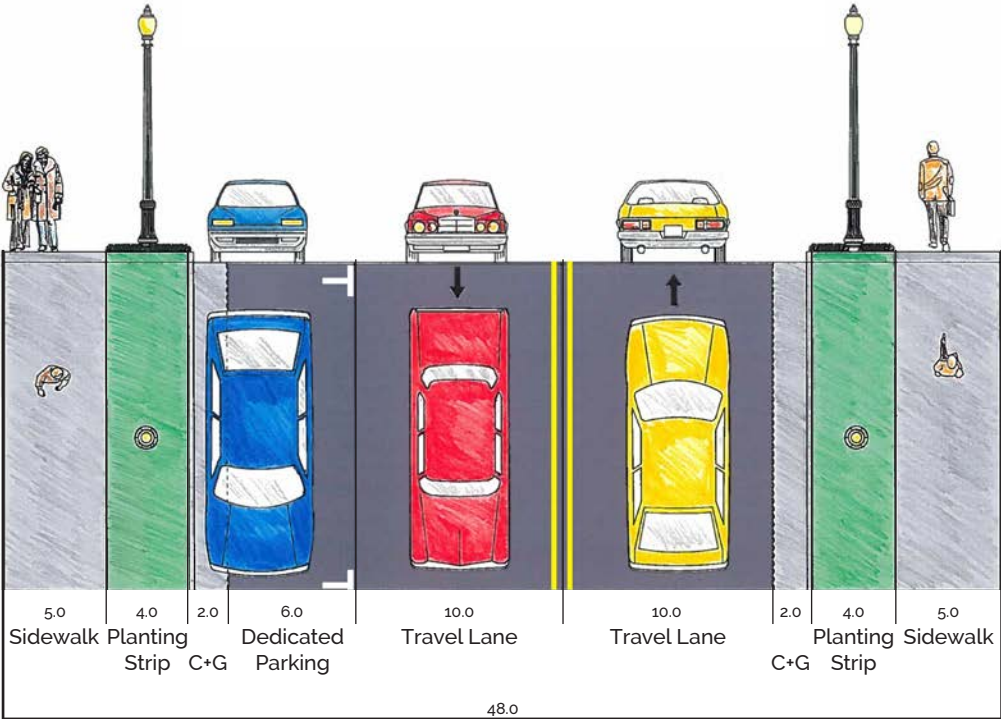
Collector Traditional-Urban Residential (48')



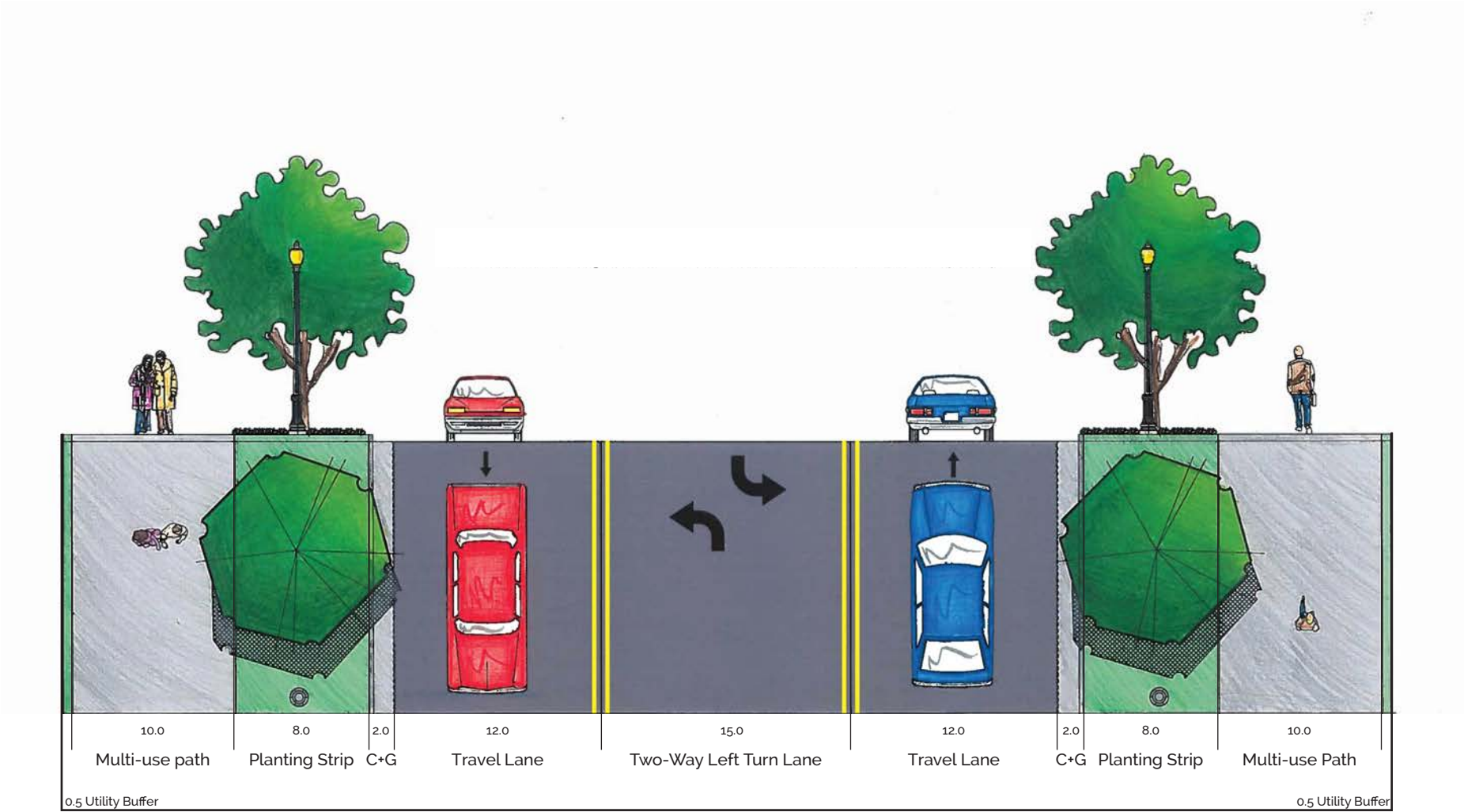
Collector Hybrid-Suburban Commercial (80')



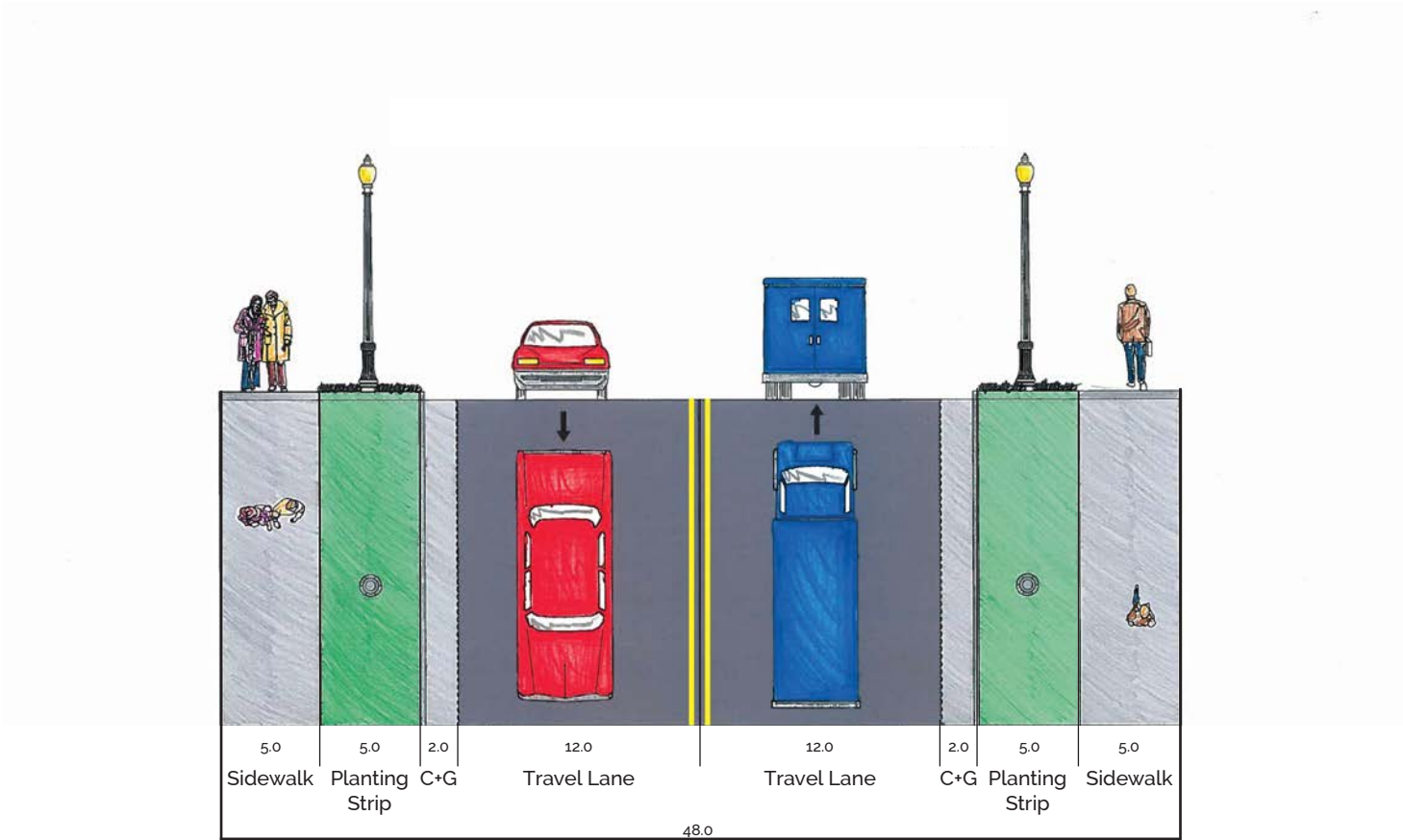
Collector Traditional-Urban Commercial (48')



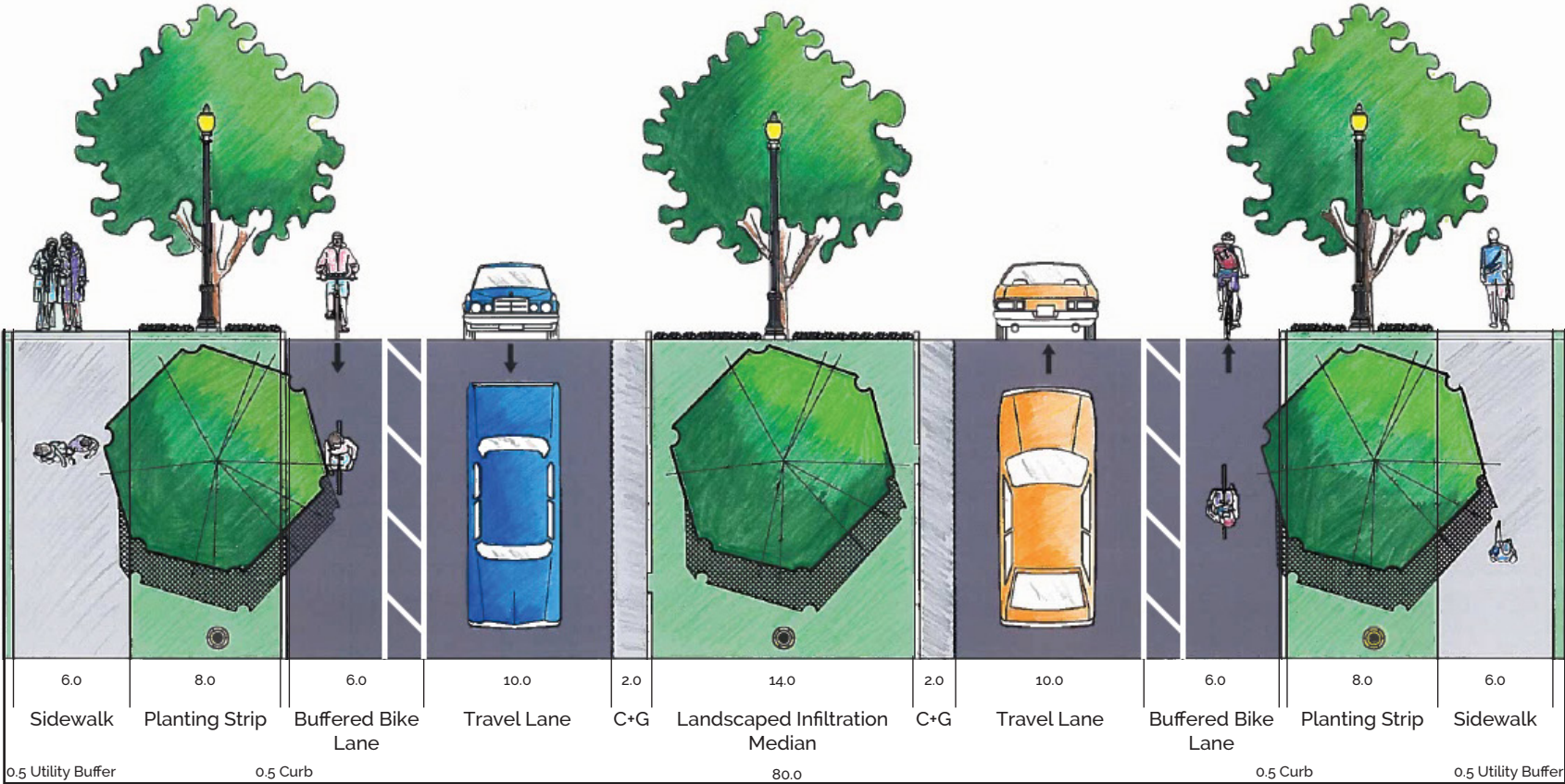
Collector Hybrid-Suburban Industrial (80')



Collector Traditional-Urban Industrial (48')



Collector Hybrid-Suburban Residential Boulevard (80')

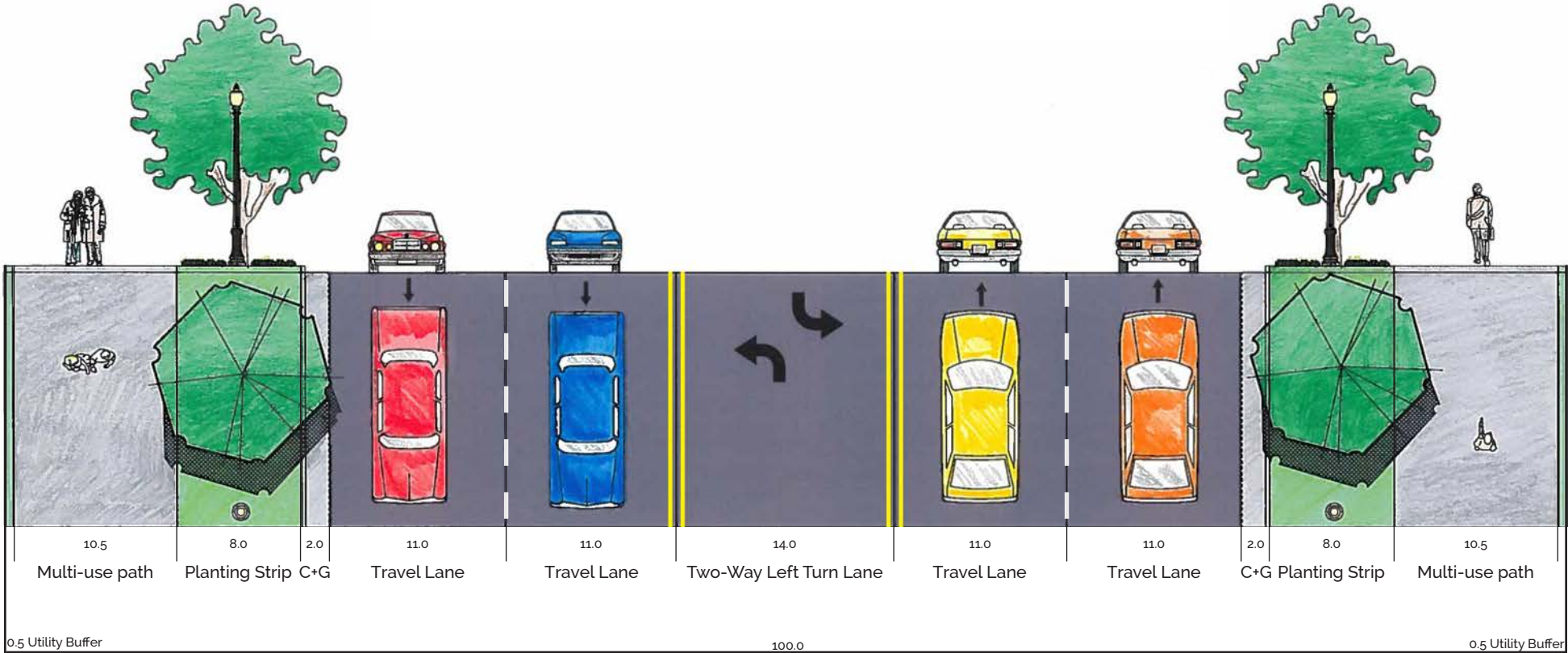


Transportation Elements	Street Classification: Secondary Arterial					
	Hybrid - Suburban			Traditional - Urban		
	Residential	Commercial	Industrial	Residential	Commercial	Industrial
Traffic Lanes:						
Lane width	11	11	12	11	11	12
Min. thru lanes	2	2	2	2	2	2
Max. thru lanes	4	4	4	2	2	2
Parking (one/both sides):	-	-	-	-	-	-
Permissive parking	-	-	-	-	-	-
Parallel parking	-	-	-	-	-	-
Angle parking	-	-	-	-	-	-
Width per side	-	-	-	-	-	-
Curb & Gutter:	Required	Required	Required	Required	Required	Required
6" Chair back	Required	Required	Required	Required	Required	Required
8" Chair back	Conditional	Conditional	Conditional	Conditional	Conditional	Conditional
Width per side	2	2	2	2	2	2
Pedestrian Facilities:	Required	Required	Required	Required	Required	Required
Material - concrete	Required	Required	Required	Required	Required	Required
Material - asphalt, pavers	Conditional	Conditional	Conditional	Conditional	Conditional	Conditional
Minimum width	10.5	10.5	10.5	6	6	6
Bicycle Facilities:	Conditional	Conditional	Conditional	Conditional	Conditional	Conditional
Pavement markings	Required	Required	Required	Required	Required	Required
Minimum buffer width	1	1	1	1	1	1
Minimum width	4	4	4	4	4	4
Policy Components:						
Access Control	Conditional	Conditional	Conditional	Conditional	Conditional	Conditional
Speed zone (mph)	35-45			20-45		

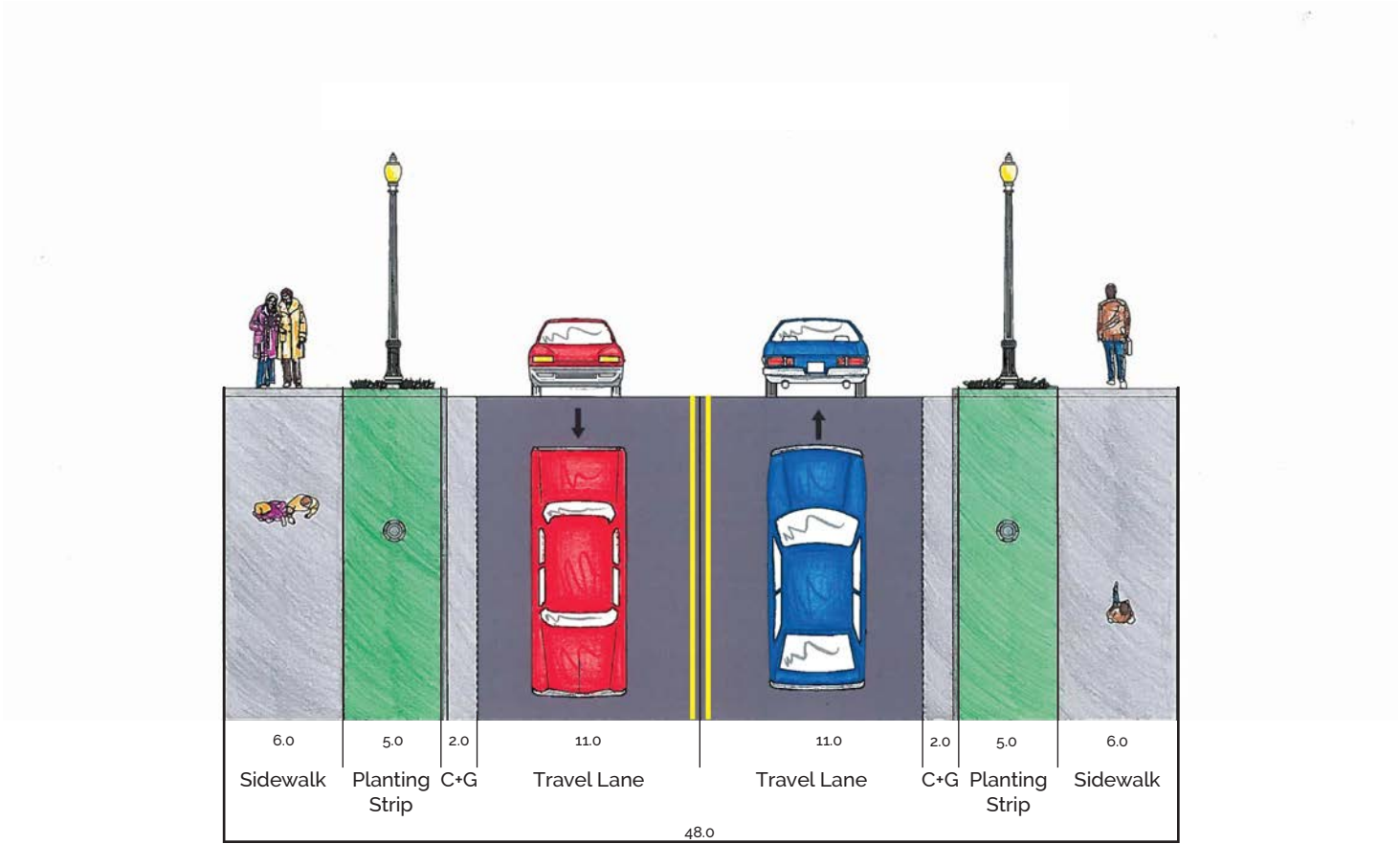
Design Elements	Street Classification: Secondary Arterial					
	Hybrid - Suburban			Traditional - Urban		
	Residential	Commercial	Industrial	Residential	Commercial	Industrial
Planting Strip:	Required	Required	Required	Required	Required	Required
Street Trees	Required	Required	Required	Conditional	Conditional	Conditional
Minimum width	8	8	6	5	5	4
Lighting:	Required	Required	Required	Required	Required	Required
Dusk to dawn lighting	Required	Required	Required	Required	Required	Required
Medians/TWLT:	Required	Required	Required	-	Conditional	Conditional
Chair back curbs	Required	Required	Required	-	Required	Required
Median trees	Permitted	Permitted	Permitted	-	Permitted	Permitted
Drainage	Permitted	Permitted	Permitted	-	Permitted	Permitted
Lighting	Permitted	Permitted	Permitted	-	Permitted	Permitted
Minimum width	14	14	14	-	12	14
Pavement Markings:						
Centerlines	Required	Required	Required	Required	Required	Required
Edge lines	Permitted	Permitted	Required	Permitted	Permitted	Required
Parking spaces	-	-	-	-	-	-
Stop bars	Required	Required	Required	Required	Required	Required

Transportation + Design Total ROW	Hybrid - Suburban			Traditional - Urban		
	Residential	Commercial	Industrial	Residential	Commercial	Industrial
ROW Width:	One foot wider than sum of all elements					
Minimum width	100	100	100	48	48	48
Maximum width	-	-	-	100	100	100

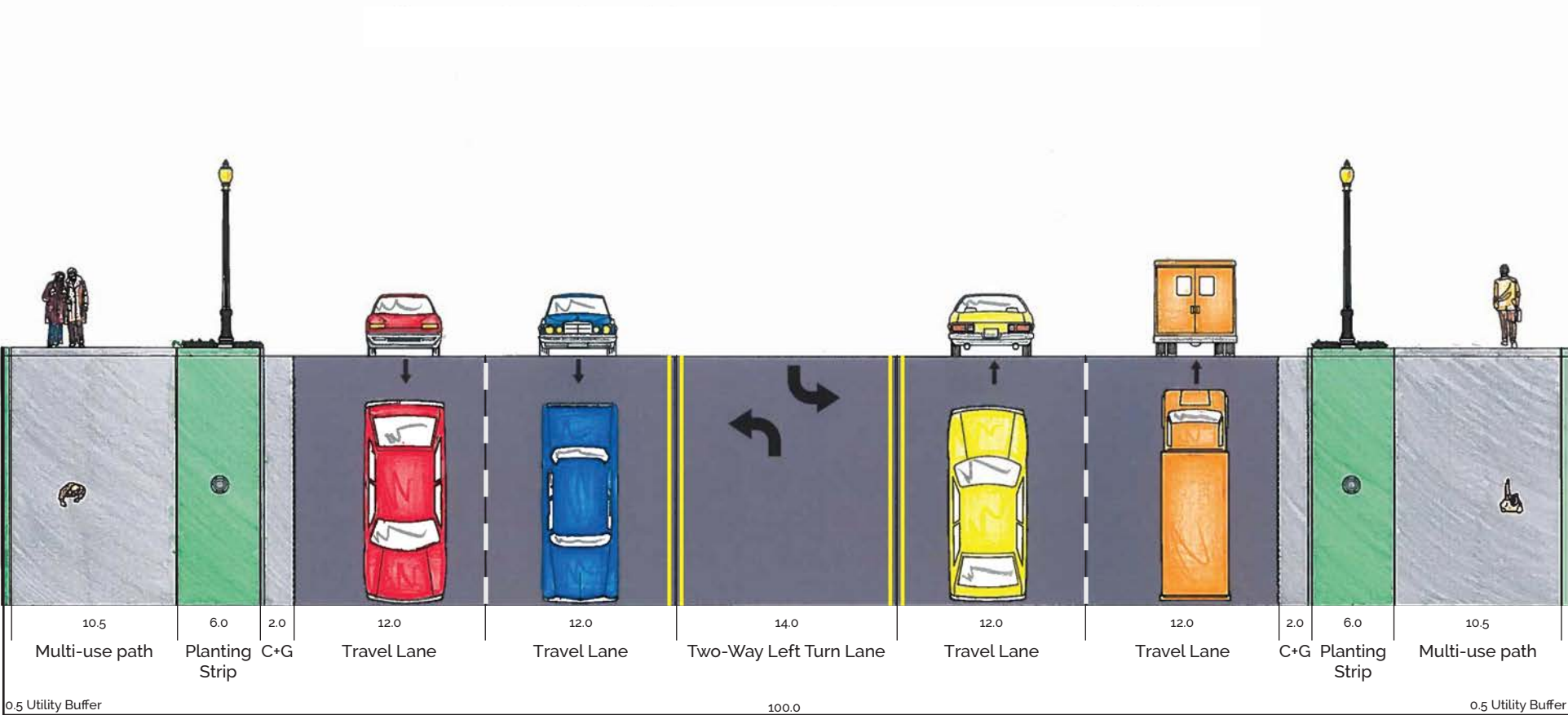
Secondary Arterial Hybrid-Suburban Residential & Commercial (100')



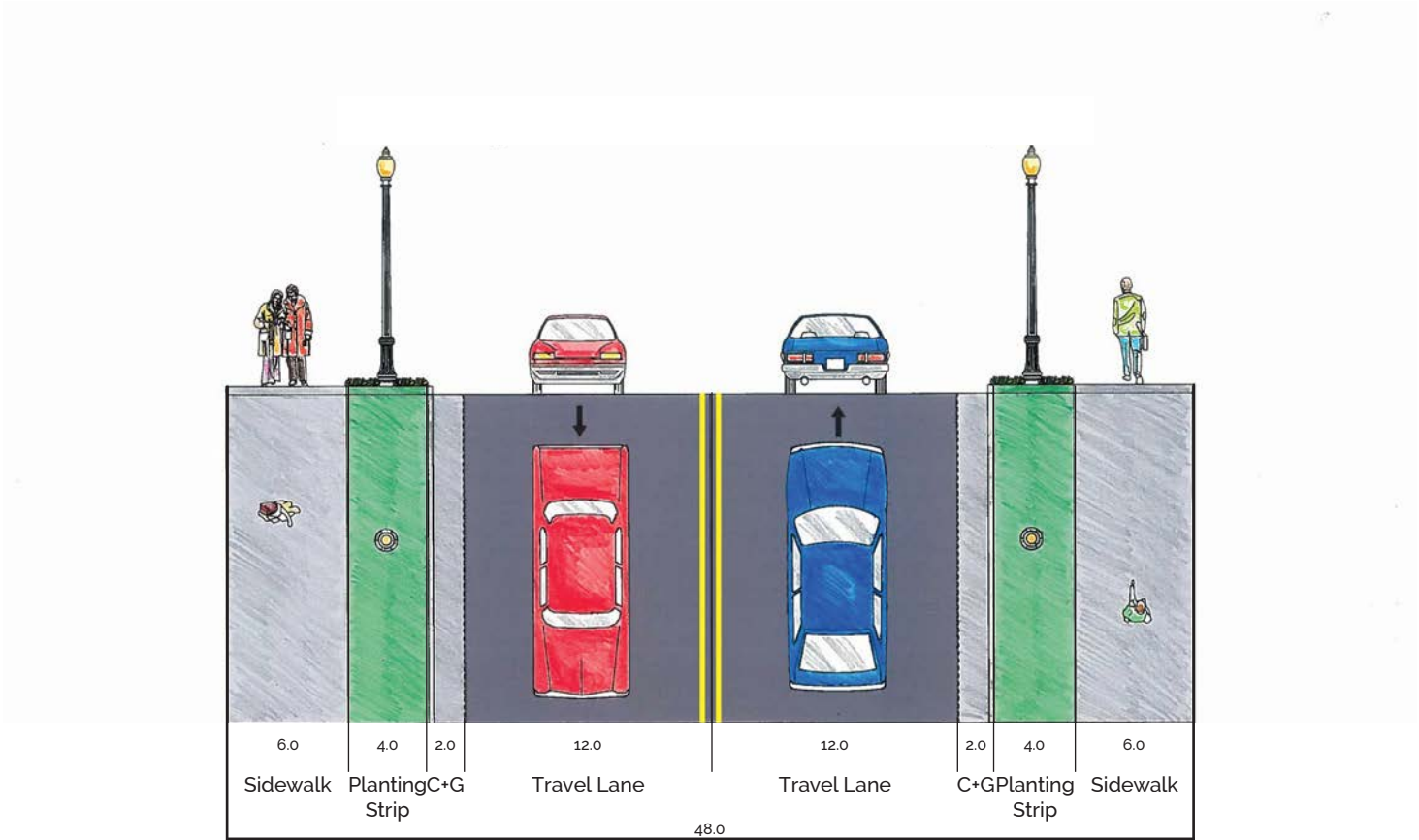
Secondary Arterial Traditional-Urban Residential & Commercial (48')



Secondary Arterial Hybrid-Suburban Industrial (100')



Secondary Arterial Traditional-Urban Industrial (48')

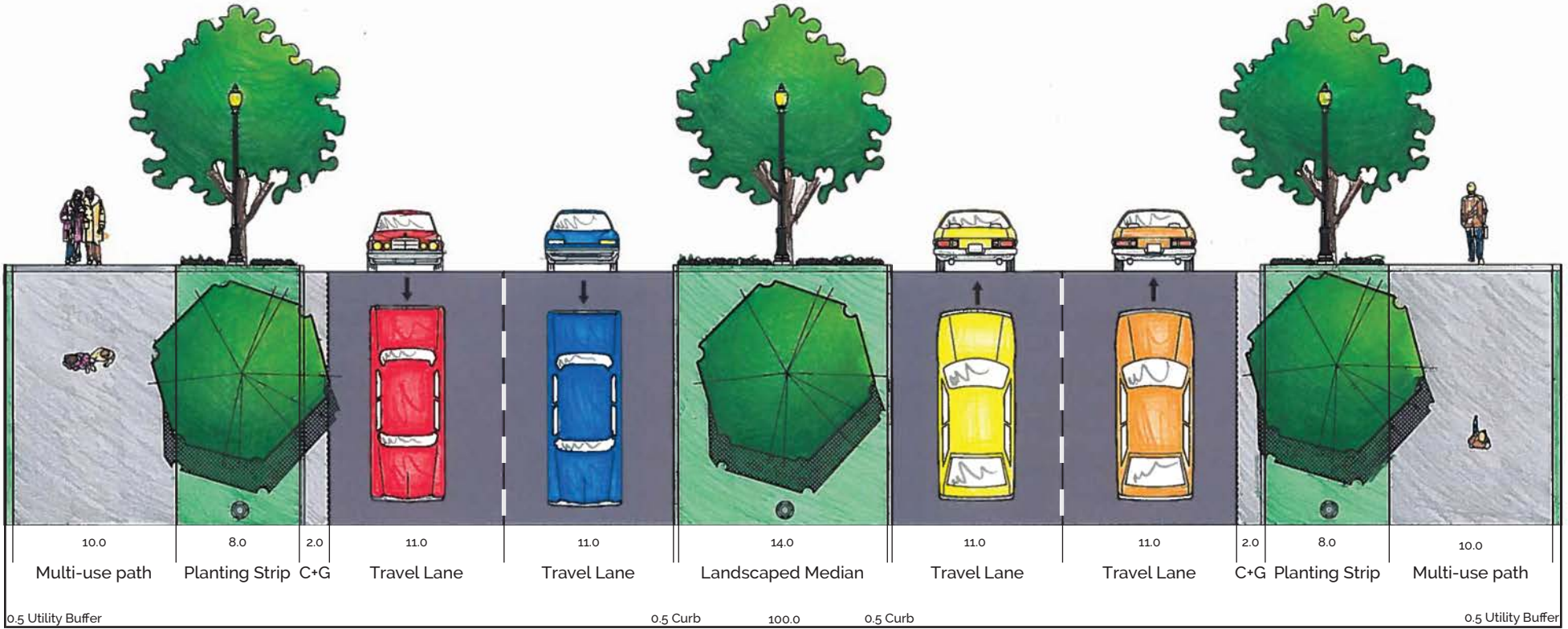


Transportation Elements	Street Classification: Primary Arterial					
	Hybrid - Suburban			Traditional - Urban		
	Residential	Commercial	Industrial	Residential	Commercial	Industrial
Traffic Lanes:						
Lane width	11	11	12	11	11	12
Min. thru lanes	2	2	2	2	2	2
Max. thru lanes	4	4	4	2	2	2
Parking (one/both sides):	-	-	-	-	-	-
Permissive parking	-	-	-	-	-	-
Parallel parking	-	-	-	-	-	-
Angle parking	-	-	-	-	-	-
Width per side	-	-	-	-	-	-
Curb & Gutter:	Required	Required	Required	Required	Required	Required
6" Chair back	Required	Required	Required	Required	Required	Required
8" Chair back	Conditional	Conditional	Conditional	Conditional	Conditional	Conditional
Width per side	2	2	2	2	2	2
Pedestrian Facilities:	Required	Required	Required	Required	Required	Required
Material - concrete	Required	Required	Required	Required	Required	Required
Material - asphalt, pavers	Conditional	Conditional	Conditional	Conditional	Conditional	Conditional
Minimum width	10	10	10	6	6	6
Bicycle Facilities:	Conditional	Conditional	Conditional	Conditional	Conditional	Conditional
Pavement markings	Required	Required	Required	Required	Required	Required
Minimum buffer width	1	1	1	1	1	1
Minimum width	4	4	4	4	4	4
Policy Components:						
Access Control	Required	Required	Required	Required	Required	Required
Speed zone (mph)		35-45			20-45	

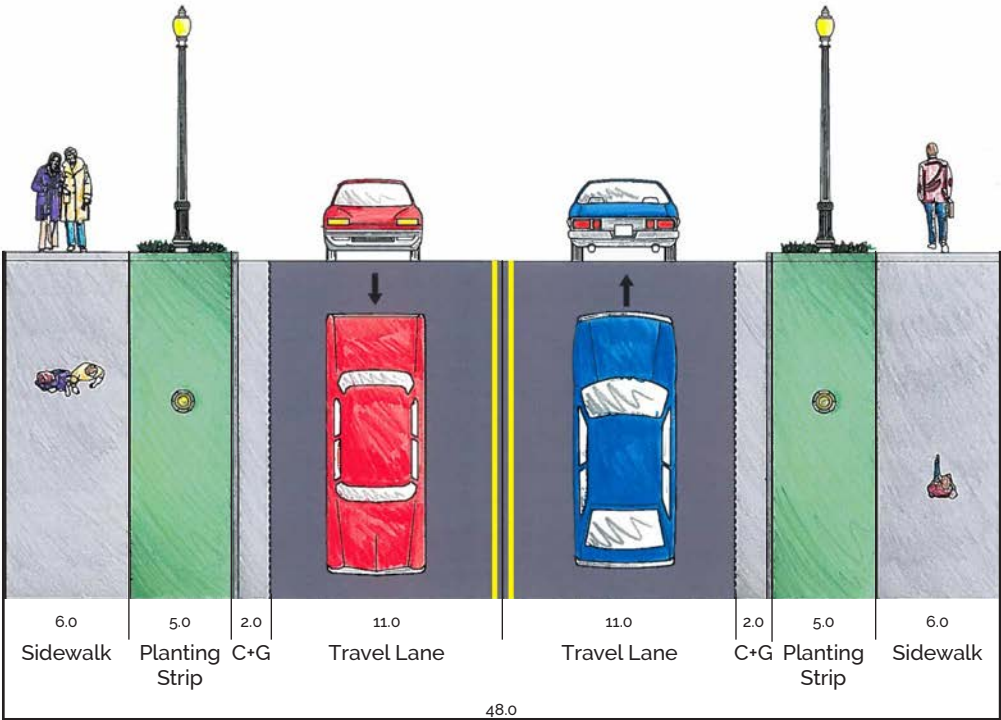
Design Elements	Street Classification: Primary Arterial					
	Hybrid - Suburban			Traditional - Urban		
	Residential	Commercial	Industrial	Residential	Commercial	Industrial
Planting Strip:	Required	Required	Required	Required	Required	Required
Street Trees	Required	Required	Required	Conditional	Conditional	Conditional
Minimum width	8	8	6	5	5	4
Lighting:	Required	Required	Required	Required	Required	Required
Dusk to dawn lighting	Required	Required	Required	Required	Required	Required
Medians/TWLT:	Required	Required	Required	-	Conditional	Conditional
Chair back curbs	Required	Required	Required	-	Required	Required
Median trees	Permitted	Permitted	Permitted	-	Permitted	Permitted
Drainage	Permitted	Permitted	Permitted	-	Permitted	Permitted
Lighting	Permitted	Permitted	Permitted	-	Permitted	Permitted
Minimum width	14	14	14	-	12	14
Pavement Markings:						
Centerlines	Required	Required	Required	Required	Required	Required
Edge lines	Permitted	Permitted	Required	Permitted	Permitted	Required
Parking spaces	-	-	-	-	-	-
Stop bars	Required	Required	Required	Required	Required	Required

Transportation + Design Total ROW	Hybrid - Suburban			Traditional - Urban		
	Residential	Commercial	Industrial	Residential	Commercial	Industrial
ROW Width:	One foot wider than sum of all elements					
Minimum width	100	100	100	48	48	48
Maximum width	-	-	-	100	100	100

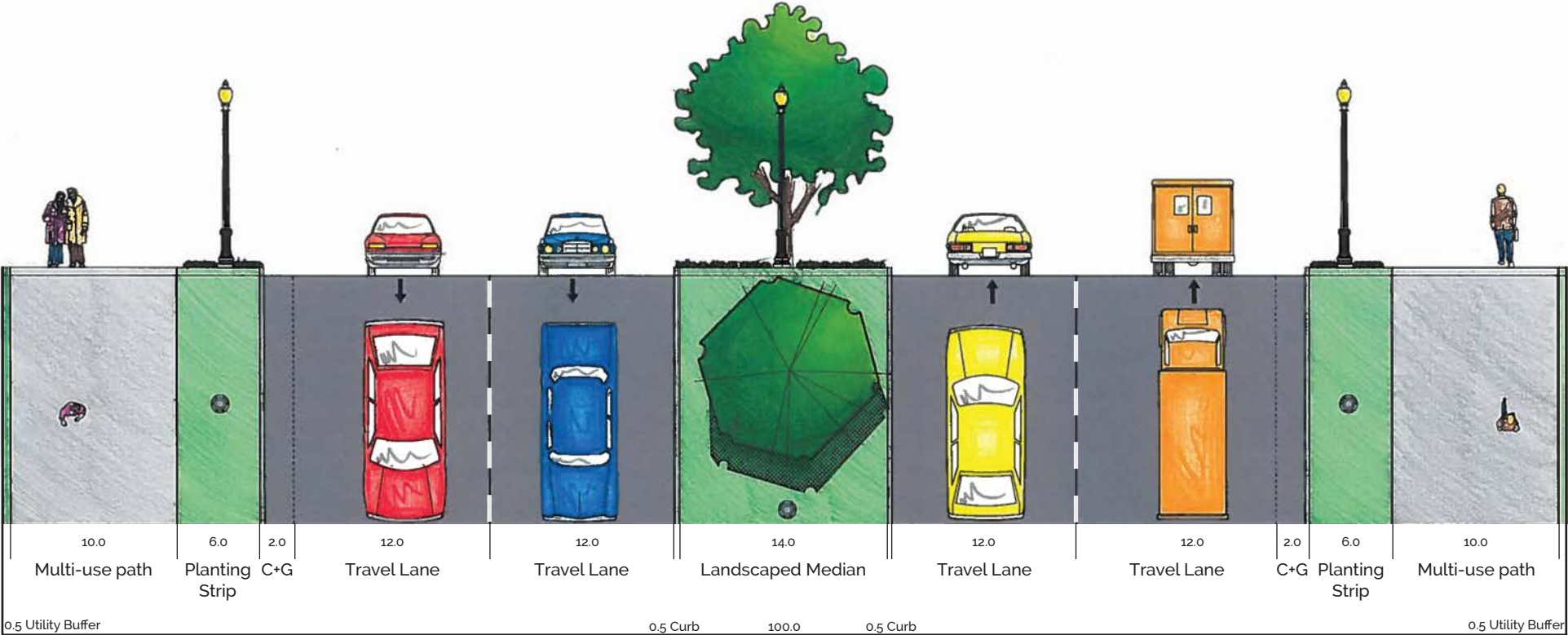
Primary Arterial Hybrid-Suburban Residential & Commercial (100')



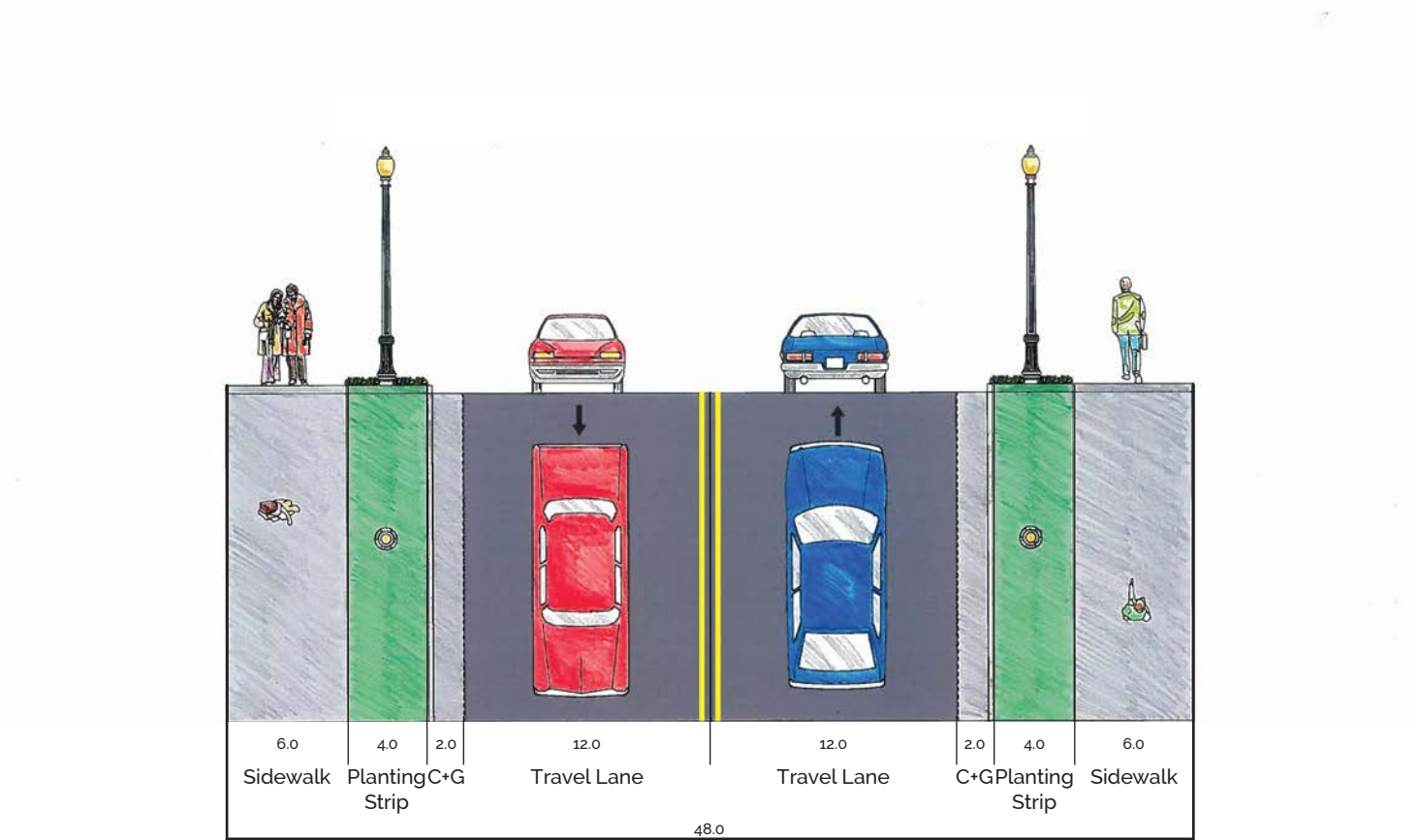
Primary Arterial Traditional-Urban Residential & Commercial (48')



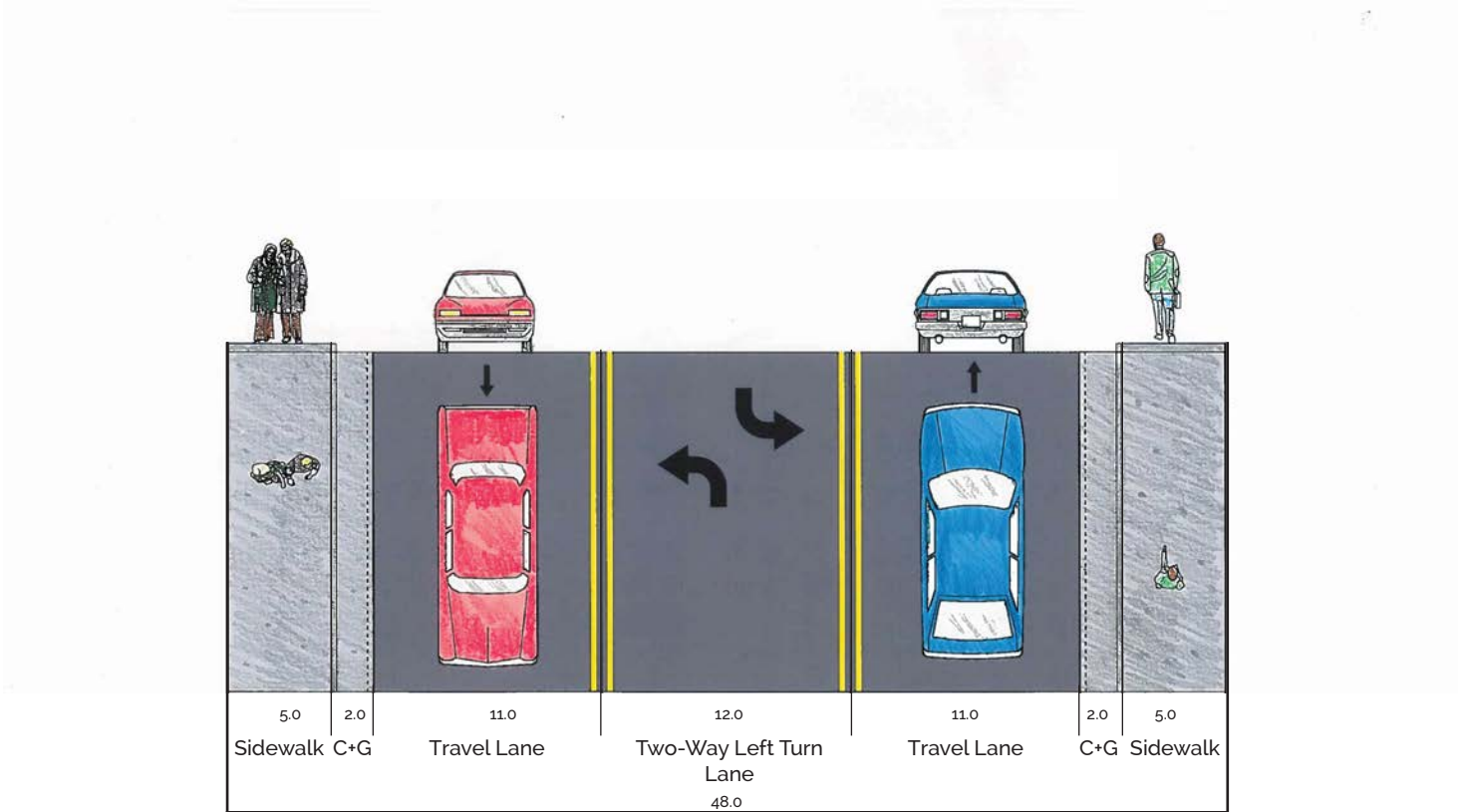
Primary Arterial Hybrid-Suburban Industrial (100')



Primary Arterial Traditional-Urban Industrial (48')



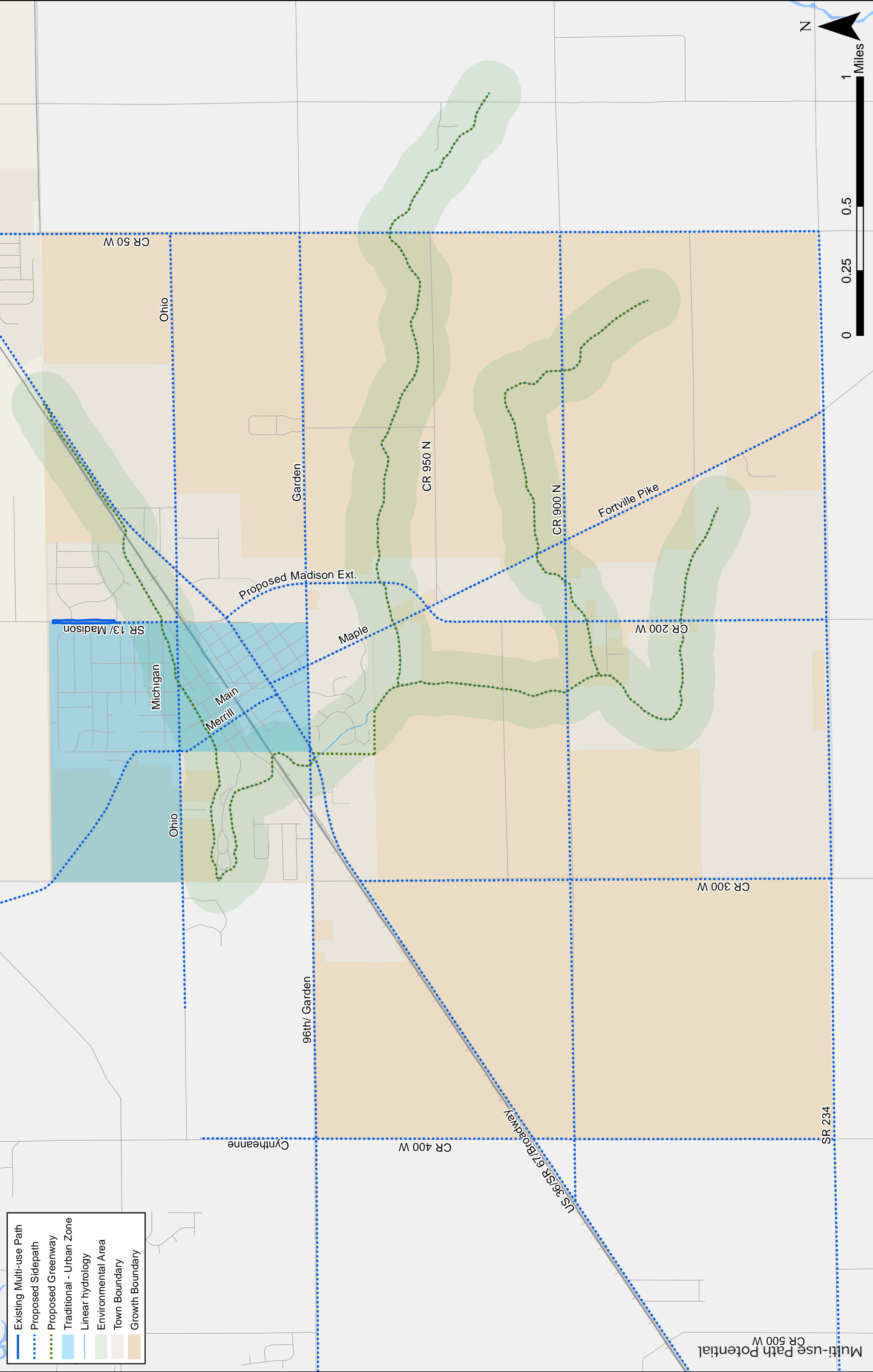
Primary Arterial Traditional-Urban with Two-Way Left Turn Lane (48')



Non-Motorized Transportation

Bicycle and pedestrian facilities play a vital role in the transportation system. Public input highlighted the importance of non-motorized transportation for successful community growth in both the Envision Fortville and Connect Fortville planning processes. Residents desire appropriate bicycle and pedestrian facilities that connect the community and provide recreational opportunities. Each level of functional classification (arterial, collector, and local) includes bicycle and pedestrian transportation elements that will support the development of an extensive active transportation network.

In addition to the roadway network, there is an opportunity for multi-use path development throughout Fortville. The adjacent trail map illustrates the combined roadway and non-motorized network once fully constructed. Like the preservation of right-of-way for transportation corridors, a key step in multi-use path development is the consideration of existing regional pedestrian infrastructure in relation to on-going development and redevelopment opportunities. The utilization of existing waterway corridors also provide opportunity to link residents together, provide pedestrian connections into natural areas, and greatly increase the recreational opportunities for community members.



Implementation

As new development or redevelopment opportunities arise, the thoroughfare plan should be referenced to ensure that the proper right-of-way is acquired for protecting vital corridors and to identify design standards as the roadway network is expanded and enhanced.

Recommendations & Next Steps

Many of the proposed transportation system improvements identified within this plan may not be constructed, or even needed in the near-term, but are important to illustrate long-term considerations. Connect Fortville should be updated in conjunction with the Envision Fortville Comprehensive Plan approximately every five years due to anticipated growth. The need, location, and extent of any future street or intersection improvements should follow this plan and be implemented based on the best information available at the time. This includes, but is not limited to, engineering feasibility, financial feasibility, benefit-cost analysis, public input, compatibility with adjacent land uses, and contributions to community-wide transportation effectiveness. In addition to the Town of

Fortville, Hancock County, the Madison County Council of Governments, and the Indiana Department of Transportation should reference this Plan to organize and prioritize transportation system improvements.

Short-term recommendations (1 to 5 years):

- Review and update street design standards
- Review and update Planned Unit Development design standards
- Adopt a Right-of-Way Dedication Policy
- Adopt an Access Control Ordinance
- Study configuration and build-out options for Southeastern Parkway/Merrill Street

Long-term recommendations (5 to 20 years):

- Further study CR 200 W / SR 13 Extension impacts
- Acquire right-of-way along US 36 / SR 67 corridor
- Connect to Flat Fork Creek Park
- Preserve right-of-way for major intersection and expansion projects
- Update Thoroughfare Plan every 5 years
- Continue to monitor / study Fortville Pike and CR 200 W build-out options



Appendix

A. VMT Analysis



Memo

To: Robert Wertman
From: Ryan Phelps
Re: AADT to VMT Conversion

VTM Estimation and Forecasting

https://www.fhwa.dot.gov/Environment/air_quality/conformity/research/sample_methodologies/emismeth02.cfm

A basic process for estimating VMT using a sample of traffic count data for use in emissions analysis is as follows:

1. Calculate the sum of counts in each facility type.
2. Determine the sample size in each facility type (i.e., the number of count sites).
3. Determine the average volume for a facility type by dividing total count by sample size.
4. Obtain total centerline miles of each facility type in the modeling domain.
5. Multiply average volume by the number of centerline miles for each facility type to estimate total VMT for each facility type.

Functional Class	Count Samples	Average AADT	Centerline Miles	Base VMT
Principal Arterial, Other	8	9,405.38	2.95	27,753.66
Minor Arterial	8	5,753.00	3.41	19,608.61
Major Collector	19	2,458.58	13.19	32,438.54
Local	4	776.75	46.42	36,055.01
Total	39	18,393.70	65.97	115,855.83
			1% Growth	141,366.13
			2% Growth	172,155.63
			3% Growth	209,248.49
			4% Growth	253,854.38
			5% Growth	308,812.36

Vehicle Miles Traveled (VMT) is estimated to be 115,855.83 miles per day for the entire Town of Fortville. Assuming this is the average day, that multiplies to 42,287,377.95 vehicle miles per year. In the simplest terms, this divides by the driving age population (2,949 age 16+) to result in an approximate 14,339.57 vehicle miles per year per person. The Town of Fortville is slightly above the national average of 13,476 vehicle miles per year per person.

Hancock County Comparison

According to INDOT's 2015 Hancock County Mileage and DVMT, the analysis area covers approximately 6.93% of the total Hancock County roadway miles and 3.90% of the total Hancock County VMT.

Functional Class	Centerline Miles		Vehicle Miles Traveled	
	Number	Percent	Number	Percent
Arterial	6.36	9.60%	47,362.28	40.88%
Collector	13.19	20.00%	32,438.54	28.00%
Local	46.42	70.40%	36,055.01	31.12%
Total	65.97		115,855.83	

CONNECT FORTVILLE

A thoroughfare plan for the Town of Fortville

2017



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CONNECT FORTVILLE

Workshop Summary

A Public Workshop focused on the visioning process for Connect Fortville was hosted at the Fortville Community Center on Thursday May 11, 2017. The Workshop was staged in an open house format allowing residents to participate at any time between 5 PM and 8 PM. There were four stations with activities structured to translate statements into vision, goal, objective, and design level input. In addition to the specific stations, comment cards were available across the room for residents that wanted to provide more anonymous comments or emphasize key thoughts. The following sections summarize the input that was received and identify the take aways that will be rolled into the rest of the process.

1. Issue Station

What was asked: Identify transportation issues in Fortville.

Participants placed color coded stickers on an aerial map to symbolize, categorize, and locate community issues. Categories are listed below:

Categories	Number	Percent of Total
Bike/Ped – Dark Blue	110	44.3%
Aesthetic – Yellow	57	23.0%
Safety – Red	56	22.6%
Congestion - Green	21	8.5%
Other – Light Blue	4	1.6%
Total	248	100.0%

Community Take Aways

Broadway Street remains a major focal point for identified issues. Out of the total 248 issues, 102 or 41.1% were placed along US 36/SR 67/ Broadway Street. Safety and congestion issues were most common along Broadway Street, especially at the Maple and Main Street intersections.

While intersections were called out for each category, bicycle and pedestrian issues were the most commonly identified intersection issues. The intersections of Staat Street and Main Street, N 200 W and N Fortville Pike, and N 200 W and State Road 234 were specifically identified for their lack of bike/ped infrastructure.

Beyond intersections, the public illustrated an overall desire for greater multi-modal connectivity; both internal and external connections. Within Fortville, residents focused on connections to downtown and between Memorial and Landmark Parks. Bicycle and pedestrian issues were also numerous along Southeastern Parkway, Ohio Street, Broadway Street, Fortville Pike, SR 13/ Madison Street, and N 200 W. These roadways are vital for connecting to Mt. Vernon Schools, Hamilton County, McCordsville, Pendleton, etc. and illustrate the desire for linking to the region as a whole.

The following tables identify the key locations within each category:

Bicycle and Pedestrian

Location	Number	Percent of Category
W Ohio Street between Hamilton County Line and Southeastern Parkway	10	9.0%
U.S. Route 36/ State Road 67/ Pendleton Pike between N 400 W and N 300 W	10	9.0%
Southeastern Parkway between Hamilton County Line and Marie Lane	8	7.2%
State Road 234	8	7.2%

Aesthetics

Location	Number	Percent of Category
Broadway Street	37	64.9%
Broadway Street Locations		Percent of Broadway
Between Flat Fork Creek and S Merrill Street	17	45.9%
Intersection of Broadway Street and Motel Drive	5	13.5%
Intersection of Broadway Street and E Ohio Street	4	10.8%
Between Motel Drive and Emerson Drive	3	8.1%
Location	Number	Percent of Category
Intersection of Staat Street and Main Street	5	8.7%

Safety

Location	Number	Percent of Category
Intersection of Broadway Street and Maple Street and S Main Street	7	12.5%
Intersection of N 200 W and N Fortville Pike	7	12.5%
Intersection of Broadway Street and State Road 13/ S Madison Street	5	8.9%
Intersection of Staat Street and Main Street	5	8.9%

Congestion

Location	Number	Percent of Category
Intersection of Broadway Street and Maple Street and S Main Street	6	28.5%

2. Build-a-Street

What was asked: Envision your ideal Local, Collector, and Arterial Roads.

Participants selected the elements and widths they desired for each of the roadway classifications and built a cross-section.

Community Take Aways

The most common elements in each category were: sidewalks/ multi-use path, tree lawns, and streetlights. Residents appear to want infrastructure that allows safe biking and walking around Fortville, regardless of the road classification. Landscaped medians with turn lanes were more frequent for arterial roads but still identified for collector roads.

Local Roads

The average ROW width was 61 feet. The shortest ROW was 40 feet, while the widest ROW was 79 feet.

- Average desired sidewalk width: 6.25 feet
- Average desired tree lawn width: 7.83 feet
- Average desired parking lane width: 8.6 feet
- Average desired travel lane width: 10.25 feet

All local road diagrams featured sidewalks. Other common elements included streetlights, tree lawns, and on-street parking.

Collector Roads

From the collector road build-a-street diagrams, the average ROW width was 88.25 feet. The shortest ROW was 68 feet while the widest ROW was 110 feet.

- Average desired sidewalk width: 10.375 feet
- Average desired tree lawn width: 10.5 feet
- Average desired parking lane width: 8 feet
- Average desired bike lane width: 6 feet
- Average desired turn lane width: 14.85 feet
- Average desired travel lane width: 11.75 feet

All collector road diagrams featured sidewalks, but the average desired sidewalk width was 10.375 feet. Sidewalks over 8 feet in width are considered multi-use paths except in high pedestrian volume areas such as downtowns. Another important feature that came from the diagrams was the desire for two-way left turn lanes (TWLTL). Less common, but important to note is the option for landscaped medians with left turn lanes at intersections.

Bike lanes were most prevalent on collector roads with an average desired width of 6 feet. Bike lanes are more suitable for collector roads as travel speeds for automobiles increase. Other important features for collector roads are streetlights, tree lawns, and parking lanes. Some residents also identified curb bump-outs in the parking lanes to increase safety and walkability.

Arterial Roads

The average ROW width was 102 feet. The shortest ROW was 96 feet while the widest ROW was 104 feet.

- Average desired multi-use path width: 11 feet
- Average desired tree lawn width: 9 feet
- Average desired turn lane width: 14.66 feet
- Average desired travel lane width: 11 feet

Common elements for arterial road diagrams featured multi-use paths, tree lawns, streetlights, four travel lanes (two in each direction), a TWLTL, and landscaped medians.

3. Visual Preference Survey

What was asked: Rank three images by design attractiveness for each functional classification.

Arterial Roads

- Best: Photo A, 69% or 24 respondents.
- Average: Photo B, 71% or 25 respondents.
- Worst: Photo C, 97% or 34 respondents.



Arterial Road Photo A

Components in the best photo: paths, tree lawns, two travel lanes in both directions (with shoulder for bike lanes), and a landscaped median to improve the aesthetics and safety of an arterial road.

Collector Roads

- Best: Photo C, 77% or 27 respondents.
- Average: Photo A, 69% or 24 respondents.
- Worst: Photo B, 80% or 28 respondents.



Collector Road Photo C

Components in the best photo: wide sidewalks/ multi-use path with planters/ street trees, clearly marked crosswalks, parking lanes in each direction, one travel lane in each direction, and a center turn lane.

Local Roads

- Best: Photo B, 63% or 22 respondents.
- Average: Photo A, 57% or 20 respondents.
- Worst: Photo C, 86% or 30 respondents.



Local Road Photo B

Components in the best photo: sidewalks, tree lawns, and travel lanes in each direction with no dedicated parking lane but permissible on-street parking.

4. Goal and Objective Identification

What was asked: Examine the Envision Fortville Comprehensive Plan goals and objectives relevant to transportation and determine if revisions or additions are necessary.

Community Take Aways

The Goal and Objective identification results generally match the Envision Fortville Comprehensive Plan Goals and Objectives:

Action Policy Building Block: Growth and Community Development		
Land Use	Goal 3: Control and improve the aesthetic character of Broadway Street corridor (U.S. Route 36/ State Road 67).	Matches with: 64.9% or 37 issues placed along Broadway Street addressing the desire for better aesthetics.

Action Policy Building Block: Quality of Life and Community Character		
Parks & Recreation	Goal 1: Create and program a network of vibrant public spaces and shared use paths throughout the town that are multi-purpose, promote a healthy and walkable community, and reflect changing recreational interests and cultural opportunities.	Matches with: desire to connect Fortville's own parks to each other with bike/ped infrastructure. Trail on Church St connecting Fortville Memorial Park and Landmark Park + Fortville residents would also like better connectivity between the parks in the town.
Action Policy Building Block: Public Facilities and Government Services		
Transportation	Goal 1: Provide for and encourage a safe, convenient, and economic transportation system inclusive of adequate accessibility to all planned land uses, alternative transportation options, and good infrastructure maintenance.	
Objective 1: Develop and maintain a transportation system plan that encourages alternatives to, and reduces dependency on the automobile.		Matches with: 44.3% or 110 issues were related to bike/ped. Fortville residents want more bike/ped infrastructure to get around Fortville and to the surrounding parks, towns, cities, and counties.
Objective 2: Develop land use regulations and subdivision ordinances that allow needed transportation facilities and improvements and encourage development patterns that enhance opportunities for pedestrian travel, bicycle travel, and forms of public transportation.		Matches with: 44.3% or 110 issues were related to bike/ped. Fortville residents want more bike/ped infrastructure to get around Fortville and to the surrounding parks, towns, cities, and counties.
Objective 3: Strive to coordinate planning actions, provide transportation services, and implement the INDOT State Transportation Improvement Program (STIP) with affected jurisdiction to best serve Fortville's residents.		Matches with: N/A

Objective 4: Identify and prioritize sidewalk and trail construction that connects the community to local schools.	Matches with: The public illustrated a desire for greater multi-modal connectivity to Mt. Vernon Schools via N 200 W. Trails, bike paths, and sidewalks to Mt. Vernon School and State Road 234 down Maple Street and N 200 W.
Objective 5: Install high-grade/ highly visible crosswalks around schools and other public facilities.	Matches with: Safety, the intersection of Broadway St and Maple St and S Main St had 12.5% or 7 issues. The intersection of N 200 W and N Fortville Pike had 12.5% or 7 issues. The intersection of Broadway and State Road 13/ S Madison St had 8.9% or 5 issues. The intersection of E Staat St and Main St had 8.9% or 5 issues. Crosswalks have been requested over numerous roadways in Fortville (Main St, Broadway St, SR 234, Church St, and Staat St). Crosswalks are needed where the most foot traffic is and where people feel the most unsafe.
Objective 6: Install sidewalks throughout parks and along Broadway Street.	Matches with: Broadway Street had a total of 102 or 41.1% of issues placed along its corridor. Bike/ped issues dotted Broadway Street. Trail on Church St connecting Fortville Memorial Park and Landmark Park. More and safer crosswalks on Broadway Street. Sidewalks along Broadway Street to Wynstone. Most issues are about Broadway Street for both drivers and pedestrians.
Objective 7: Build a commuter lot or find existing town-oriented properties that may serve to fill this need.	Matches with: N/A

Objective 8: Maintain and enhance commuter bus routes to Downtown Indianapolis (existing provider Miller Trailways).	Matches with: N/A
Objective 9: Install sidewalks or other multi-modal trails along the corridor (101st St/ County Rd. 1050 N. East to Cyntheanne Road) that connects Fortville to the City of Fisher's new Flat Fork Creek Park (Four Season Park).	Matches with: The public illustrated a desire for greater multi-modal connectivity to places outside of downtown Fortville, especially along Ohio Street/ 101st St/ CR 1050 N to the City of Fishers and Flat Fork Creek Park. Trail along Ohio Street to Flat Fork Creek Park eventually extending to the City of Fishers.

Priority List	
Rank	Goal & Objective
High Priority	
1.	Land Use Goal 3 – Improve aesthetic character of Broadway Street
2.	Transportation Goal 1 – Objective 6 – Install sidewalks throughout parks and Broadway Street
3.	Transportation Goal 1 – Objective 4 – Identify/ prioritize sidewalk and trail construction that connects community to local schools
4.	Parks & Recreation Goal 1 – Create network of shared use paths throughout the town that are multi-purpose
Medium Priority	
5.	Transportation Goal 1 – Objective 1 – Develop/ maintain a transportation plan that reduces dependency on the automobile
6.	Transportation Goal 1 – Objective 5 – Install high grade/ highly visible crosswalks about schools/ public facilities
7.	Transportation Goal 1 – Objective 9 – Install sidewalks/ multi-modal trails that connects Fortville to Flat Fork Creek Park
8.	Transportation Goal 1 – Objective 2 – Develop land regulations/ subdivision ordinances that encourage pedestrian/ bicycle travel

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Low Priority	
9.	Transportation Goal 1 – Objective 3 – Coordinate planning actions and implement the INDOT State Transportation Improvement Program (STIP)
10.	Transportation Goal 1 – Objective 8 – Maintain/ enhance commuter bus routes to Downtown Indianapolis
11.	Transportation Goal 1 – Objective 7 – Build a commuter lot

The following specific comments were broken down into categories:

Bike/Ped

- Trail along Southeastern Pkwy/ Merrill St to Hamilton County, Hamilton Town Center
- Trail along Ohio to Flat Fork Creek
- Multi-use path to Wynstone on Broadway St
- Bike paths along 96th St to Geist Reservoir
- Trail between Fortville and McCordsville
- Bike lanes in downtown Fortville
- Trails, bike paths, and sidewalks to Mt. Vernon School and State Road 234 down Maple and N 200 W
- Trail on Church St connecting Fortville Memorial Park and Landmark Park
- More walkable downtown

Fortville residents identified a preference for multi-modal connectivity to places outside of Fortville. The top areas for connectivity are:

- Mt. Vernon Schools
- Hamilton County and Hamilton Town Center
- Geist Reservoir
- City of Fishers
- Town of McCordsville
- Town of Pendleton
- Between Fortville Memorial Park and Landmark Park, ideally via Church Street

Intersections

- Roundabouts
 - Garden/ Vitality St and Broadway St
 - Fortville Pike and N 200 W
 - Madison St and Broadway St
 - State Road 234 and N 200 W
 - State Road 234 and Fortville Pike
- Main St and Staat St intersection is requested to be all-way stop control.
- Widen intersection and add turn lanes on Fortville Pike and Broadway St near congestion
- Stoplight at intersection of N 425 W and State Road 234

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- Add left turn lane at stoplight on Maple St, Northbound/ Eastbound

Fortville residents identified a preference for roundabouts over traffic signals.

Crosswalks

- Raised, bumped out crosswalks on Main St
- More and safer crosswalks on Broadway St
- Crosswalks over State Road 234
- Church and Main Street intersection should have crosswalks
- Staat and Main Street intersection should have crosswalks

Congestion/ Safety

- Extension of State Road 13/ Madison St to Fortville Pike
- Turning left on Broadway Street is dangerous after Main Street
- Broadway Street should be 3 lanes w/ center turn lane

Aesthetic/ Other

- Church at Maple St and Broadway St needs to limit the sign size
- CR 500 roads needs to be wider or shoulders reinforced
- Downtown Fortville needs more public parking near Main Street

Comment Cards

What was asked: Comment cards were placed throughout the public workshop for anyone wanting to anonymously leave a comment. Quotes from relevant comment cards are included below.

"Collector Roads should have: narrowed lanes to integrate cyclists with slower speeds, narrow turn lanes for wider sidewalks, if parking was not necessary – move to rear and none on Main Street, and grass buffers defeats purpose – integrate street trees into sidewalks for more bike/ped space."

"Street trees – leave up to homeowner. Use ornamental street trees – not too large."

"The wider the sidewalk, the more in town maintenance costs. Rather have good quality sidewalks than wide sidewalks."

"Three lanes with turn lane needed on Broadway Street."

"Turning left on U.S. Route 36 is dangerous after Main Street."

"Church Street and Main Street and Staat Street and Main Street should have crosswalks crossing Main and make easier to see when crossing/turning on Main."

"Wider sidewalks, walkable (downtown Zionsville, much character, charming). Bike path from downtown to Fishers Park."

"Church Street do a path on one side connecting Fortville Memorial Park to Landmark Park."

"Put bike/walking lane from Main down Maple and 200 W to ride bikes or walk to school or sports game or something."

"Bike lanes near trails not every street."

"Protection for pedestrians on arterial roads and bike lanes."

Final Community Take Aways

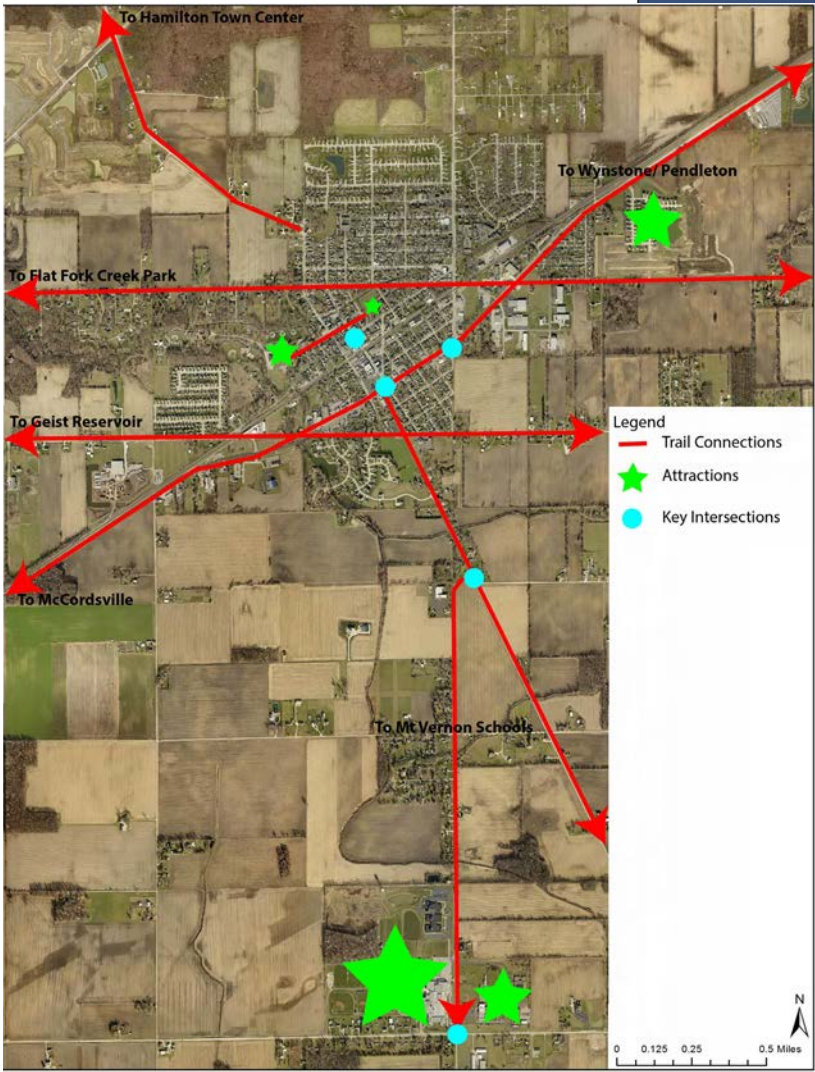
Street design in the future should include:

- Sidewalks/Multi-use paths along all local, collector, and arterial roads
- Streetlights along all local, collector, and arterial roads
- Tree lawns along all local, collector, and arterial roads
- Center turn lanes on collector roads
- Landscaped medians with turn lanes on arterial roads
- Bike lanes on collector roads
- Wider sidewalks
- Dedicated parking lanes on collector roads
- On-street parking on local roads

The overall take-aways from the public input results would be:

- Improved aesthetics along Broadway Street
- Safer and additional crosswalks on Broadway Street
- Installation of bike/ped infrastructure on Broadway Street (especially towards Wynstone)
- Crosswalks along Main Street
- Wider sidewalks on Main Street
- Bike/ped connections to Flat Fork Creek Park, Mt. Vernon Schools, and between Fortville Memorial Park and Landmark Park via Church Street

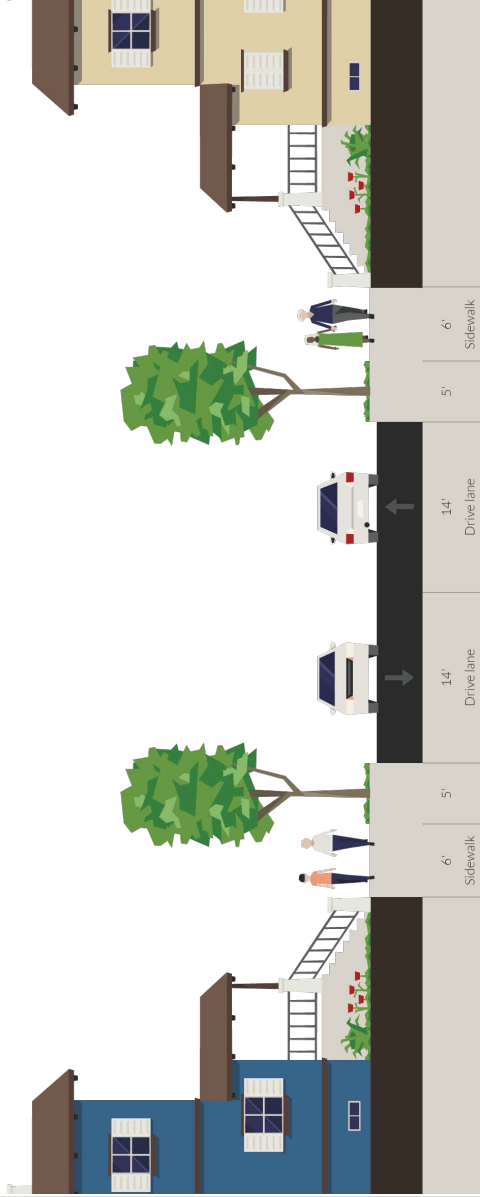
The map below highlights key locations that were a focus of conversations throughout the workshop.



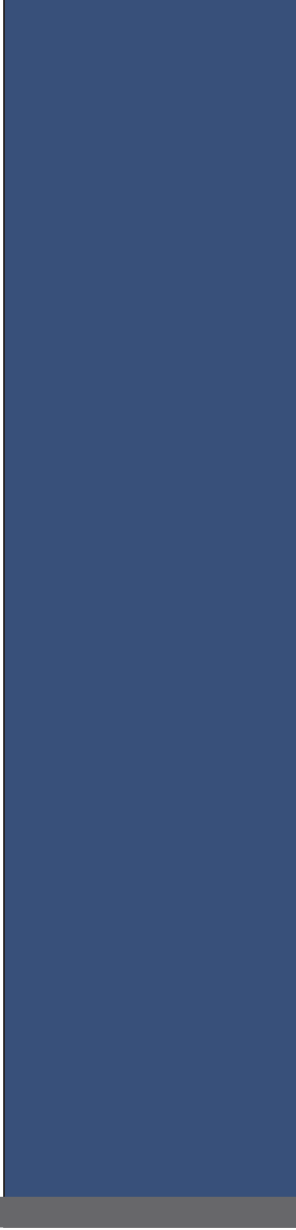
Cross Section Typicals

Proposed typical cross sections for the three functional classifications are included below. These have been designed to reflect the input of residents, the steering committee, and expert judgment. The next steps are to identify any modifications that should be made to the typicals as well as determining if additional classifications should be added to provide more flexibility in the typical cross sections.

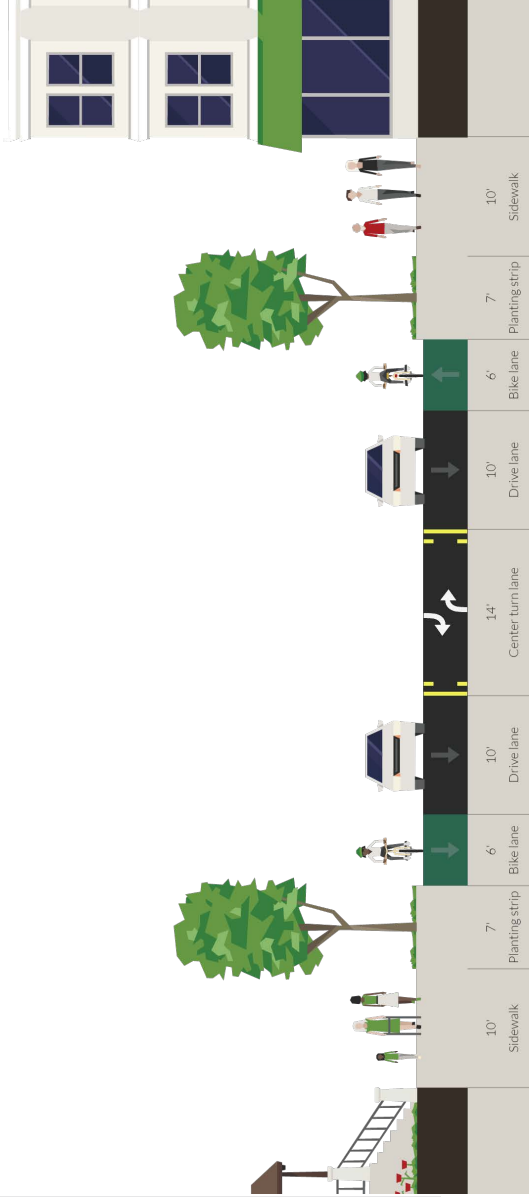
Fortville Local Road Typical (Parking) (50')



18

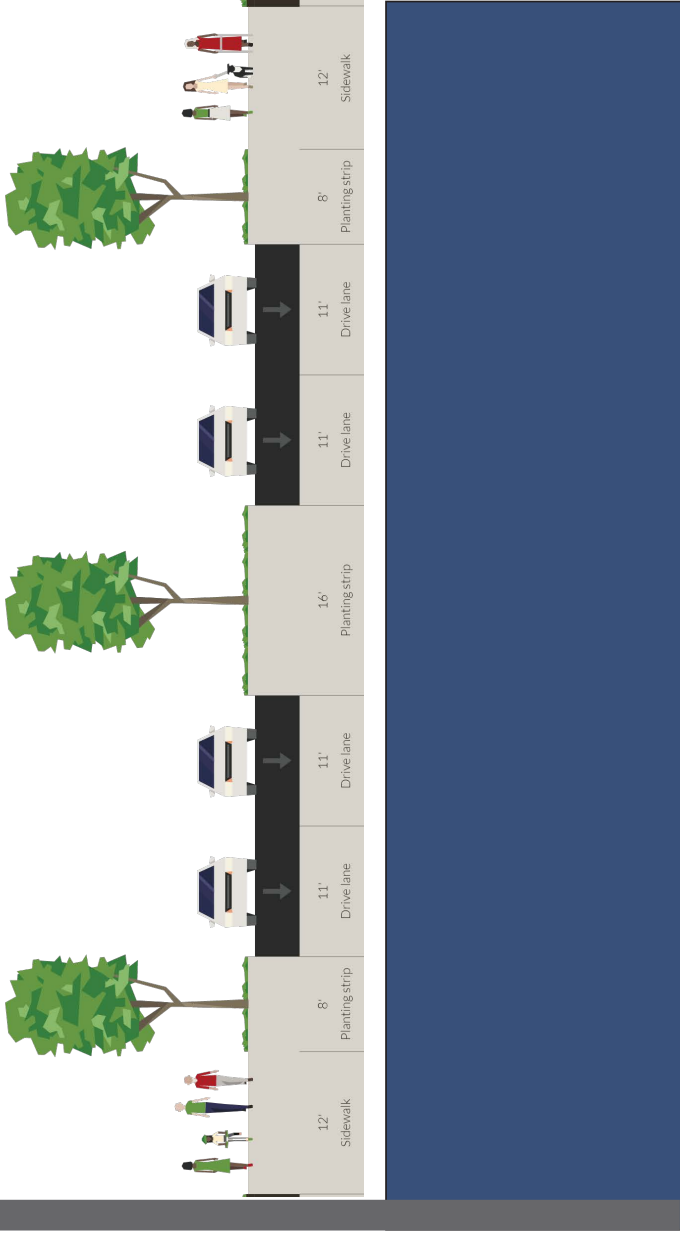


Fortville Collector Road Typical (80')



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Fortville Arterial Typical (100')



C. Traditional Neighborhood Development Zoning Example

Traditional Neighborhood Development Ordinance

ORDINANCE NO. 2000-12

AN ORDINANCE BY THE CITY OF POWDER SPRINGS, GEORGIA, TO COMPREHENSIVELY AMEND THE ZONING ORDINANCE OF THE CITY OF POWDER SPRINGS ADOPTED IN 1987, AS AMENDED FROM TIME TO TIME, TO CREATE A NEW ZONING DISTRICT CALLED “TRADITIONAL NEIGHBORHOOD DEVELOPMENT”; TO PROVIDE FOR RULES AND REGULATIONS FOR THE TRADITIONAL NEIGHBORHOOD DEVELOPMENT DISTRICT; TO PROVIDE FOR THE REPEAL OF CONFLICTING ORDINANCES AND PARTS OF ORDINANCES; TO PROVIDE AN EFFECTIVE DATE; AND FOR OTHER PURPOSES.

WHEREAS, the Powder Springs zoning ordinance was last comprehensively amended in 1995; and

WHEREAS, the governing authority of Powder Springs desires to amend the text of its zoning ordinance; and

WHEREAS, in order to provide for the continued orderly growth in Powder Springs and to improve the present zoning ordinance, certain changes and additions to the zoning ordinance are necessary; and

WHEREAS, the proposed amendment to the zoning ordinance encompasses the intent and purpose of the 1987 zoning ordinance, by recognizing the changes forecast in the Powder Springs Comprehensive Plan which provides a solution to meeting these changes; and

WHEREAS, notice of a public hearing was duly published as required by O.C.G.A., Title 36; and

WHEREAS, pursuant to O.C.G.A. Title 36, public hearing for the Mayor and Council was held on July 17, 2000, at which time all owners of property affected and other citizens of the city were given opportunity after public notice as required by law to voice their protests, suggestions, or criticisms, if any;

NOW THEREFORE, the Mayor and Council of the City of Powder Springs ordains that the Zoning Ordinance for the City of Powder Springs, Georgia, Ordinance 95-6 as adopted October 2, 1995, and as amended from time to time shall be amended as follows:

1. A new zoning district, denominated “Traditional Neighborhood Development” shall be created and known as “TND”. To that end, Section 7.12, previously reserved, shall be amended and shall read as follows:

“7.12 TND Traditional Neighborhood Development.

- 7.12.01

Purpose and Intent. The TND District is established to encourage and provide flexible site plan and building arrangements under a plan of comprehensive residential and commercial development rather than a lot-by-lot regulation.

The TND District is intended to encourage smart-growth planning and development in the City of Powder Springs, and to encourage the creation of planned small communities where citizens may live, work and enjoy recreational activities without dependence on the automobile. TND Districts shall combine residential, commercial and recreational elements in order to create a livable, more desirable environment for the residents of the City.

The TND District will allow higher density residential development, yet will require additional amenities so as to create a true livable community, zoning district, including a variety of residential elements and commercial and retail establishments.
- 7.12.02

Basis for Consideration of Zoning Applications. Consideration for approval or disapproval of a TND planned small community shall be based on and interpreted in light of the effect of the development on the comprehensive plan of the City, and in light of the effect of the development on the use of property adjacent to and in the areas close to the TND planned small community. Applications for the TND zoning district must conform with each and every requirement of a TND planned small community, as provided for herein. The Mayor and Council reserve the right to disapprove any application which does not conform to the requirements of a TND planned small community, as provided for herein. However, the Mayor and Council may approve an application for the TND zoning district with stipulations, conditions, modifications or variances.
- 7.12.03

Modifications and Variances. The Mayor and Council may, by conditional use approval, permit the modification of the provisions of this article, including but not limited to provisions relating to the percentage of types of dwelling units and the amount of commercial development, in order to encourage the development of a planned small community. Any modification of the requirements of this article shall be subject to the following standards:

7.12.03.01 The design and improvement of the planned small community shall be in harmony with the purpose and intent of this article.

7.12.03.02 The design and improvement of the planned small community shall generally enhance the development plan, or in any case not have an adverse impact on its physical, visual, or spatial characteristics.

7.12.03.03 The design and improvement of the planned small community shall generally enhance the streetscape and neighborhood, or in any case not have an adverse impact on the streetscape and neighborhood.

7.12.03.04 The modification shall not result in configurations of lots or street systems which shall be impractical or detract from the appearance of the proposed planned small community.

7.12.03.05 The proposed modification shall not result in any danger to public health, safety, or welfare by making access to the dwellings by emergency vehicles more difficult, by depriving adjoining properties of adequate lighting and air, or by violating the other purposes for which zoning ordinances are to be enacted.

7.12.03.06 Landscaping and other methods shall be used to insure compliance with the design standards and guidelines of this article.

7.12.03.07 The minimum lot size of any lot created shall not be reduced below the requirements of this article

7.12.03.08 The landowner shall demonstrate that the proposed modification will allow for equal or better results and represents the minimum modification necessary

If the Mayor and Council determines that the landowner has met his or her burden, it may grant modification of the requirements of this article. In granting such modifications, the Mayor and Council may impose such conditions as will, in its judgment, secure the objectives and purposed of this article

7.12.04 **Plan Review.** Design plans for a planned small community shall be submitted to the City Engineer. The City Engineer shall provide a report stating whether the proposed planned small community meets the minimum requirements of the article.

[ZONE TO PLAN]

7.12.05 Definitions.

7.12.05.01 Buffer. An area within a property or site, generally adjacent to and parallel with the property line, either consisting of existing natural vegetation or created by the use of trees, shrubs, berms, and/or fences or walls, and designed to limit views and sounds from the development tract to adjacent properties and vice versa.

7.12.05.02 Facade. A building face or wall.

7.12.05.03 Fenestration. Window and other openings on a building facade.

7.12.05.04 Gateway. A principal point of entrance into a district or neighborhood.

7.12.05.05 Gateway Building. A building located at a gateway and which dramatically marks this entrance or transition through massing, extended height, use of arches or colonnades, or other distinguishing features.

7.12.05.06 Internal Open Space. A component of common open space, comprising one or more parcels with a minimum area of 500 square feet, or a distinct geometric shape, and bounded by streets with curb side parking on a minimum of 50 percent of their perimeter.

7.12.05.07 Lane. A private street or easement located through the interior of blocks and providing vehicular and service access to the side or rear of properties.

7.12.05.08 Linkage. A line of communication, such as a pathway, arcade, lane, etc., linking two areas or neighborhoods which are either distinct or separated by a physical feature (e.g., a railroad line, major arterial) or a natural feature (e.g., a river or stream).

7.12.05.09 Public Sidewalk. A paved path provided for pedestrian use and usually located at the side of a road within a right-of-way.

7.12.05.10 Sidewalk Display. The outdoor display of merchandise for sale by a commercial establishment. The displayed

	merchandise must be similar to the merchandise sold within the establishment.	7.12.06.08.02	Offices.
7.12.05.11	Streetscape. The built and planted elements of a street which define its character.	7.12.06.08.03	Retail sales of goods and services.
7.12.05.12	Visual Termination. A point, surface, building, or structure terminating a vista or view, often at the end of a straight street or coinciding with a bend.	7.12.06.08.04	Restaurants, except drive-through facilities.
		7.12.06.08.05	Neighborhood motor vehicle service station or garage.
7.12.06	Permitted Principal Uses.	7.12.06.09	Golf Courses.
7.12.06.01	Residential Uses.	7.12.06.10	Agricultural Uses, except agri-business structures.
7.12.06.01.01	Single Family Detached.	7.12.06.11	Public and semi-public recreational uses.
7.12.06.01.02	Single Family Semi-detached.	7.12.06.12	Equestrian uses, limited to housing for horses for the personal use of residents of the development.
7.12.06.01.03	Duplex.	7.12.06.13	Cemeteries.
7.12.06.01.04	Townhouse.	7.12.06.14	Bed and Breakfast establishments.
7.12.06.01.05	Apartment dwellings, containing less than 10 units.	7.12.07	Permitted Accessory Uses.
7.12.06.01.06	Accessory dwellings.	7.12.07.01	All residential accessory uses shall comply with the Residential Accessory Use Regulations, except as modified in this article.
7.12.06.02	Public and Semi-Public Uses, including parks and playgrounds and structures typically constructed as part of this type of facility.	7.12.07.02	Home-based offices, with some conditions.
7.12.06.03	Community Clubs.	7.12.07.03	Accessory uses, buildings, or structures for all other non-residential uses as approved.
7.12.06.04	Community Facilities.	7.12.08	Minimum Area. An application for a TND planned small community shall consist of no less than ten (10) contiguous acres of land. However, there shall be no minimum size for a TND planned small community in the Downtown Activity Center.
7.12.06.05	Day Care Centers.	7.12.09	Utility Services. Water and sewer service shall be required.
7.12.06.06	Elderly Day Care Centers.	7.12.10	Common Open Space and Community Green.
7.12.06.07	Churches.	7.12.10.01	Not less than twenty-five (25) to thirty-five (35) percent of the total acreage of a TND planned small community shall be allocated to and shall remain as common open space in perpetuity.
7.12.06.08	Commercial Uses.		
7.12.06.08.01	Banks and other financial institutions, including drive-through banking provided such are located at the rear of a site.		

- 7.12.10.02 Common open space shall be deed-restricted to prohibit future development on said common open space.
- 7.12.10.03 Internal open spaces shall contain a minimum area of five hundred (500) square feet and shall be of a distinct geometric shape.
- 7.12.10.05 Each TND small community shall be designed to have one primary internal open space which shall be considered as part of the dedicated common open space requirement and shall be referred to as the community green.
 - 7.12.10.05.01 Each community green shall have a minimum area of ten thousand (10,000) square feet.
 - 7.12.10.05.02 Each community green shall be situated within the development so that the center of the community green is within fifteen hundred (1,500) feet of 90% of all dwelling units in the development.
 - 7.12.10.05.03 Each community green may include public restrooms, public telephones, and police/fire call boxes.
- 7.12.10.06 Peripheral open space shall be required on the exterior perimeter of each TND planned small community and shall cover the entire perimeter of the community.
 - 7.12.10.06.01 At a minimum, peripheral open space shall consist of a landscaped or arboreal buffer of no less than twenty-five (25) feet.
 - 7.12.10.06.02 Peripheral open space areas may be used for golf courses, and public and semi-public recreation purposes with the approval of the Mayor and Council.
- 7.12.10.07 Common open space, particularly peripheral open space areas, containing existing attractive or unique natural features, such as streams, creeks, ponds, woodlands, specimen trees, and other areas of mature vegetation worthy of preservation shall, to the maximum extend possible, be left unimproved and in its natural state.
- 7.12.10.8 Cemeteries may be permitted in both internal and peripheral open space areas with the approval of the Mayor and Council.
- 7.12.10.09 The buildings, structures, and improvements permitted in the common open space shall be appropriate to the authorized uses and shall conserve and enhance the amenities of the common open space.
- 7.12.10.10 The method utilized for ownership, administration, and maintenance of common open space shall be approved by the Mayor and Council.
 - 7.12.10.10.01 The City may accept dedication of common open spaces or any interest therein for public use and maintenance, for no consideration to be paid by the City
 - 7.12.10.10.02 The landowner must establish an automatic-membership homeowners' association as a non-profit corporation for the purpose of owning, administering, and maintaining common open space in the TND planned small community.
 - 7.12.10.10.03 The landowner may establish a deed or deeds of trust, for the purpose of owning, administering, and maintaining common open space.
 - 7.12.10.10.04 The developer may transfer the fee simple title in the common open space to a private, non-profit organization among whose purposes is the conservation of open space land and/or natural resources.
 - 7.12.10.10.05 If a portion of the common open space is to be used for agricultural purposes, that portion may be transferred to a person or other entity who will farm the land.
 - 7.12.10.10.06 If a portion of the common space is to be used for cemetery purposes, that portion may be transferred to a religious organization, cemetery corporation, or other similar entity which will operate or maintain the cemetery.

- 7.12.10.11 Shall any organization entrusted with the care and maintenance of common open space in a TND planned small community fail to properly maintain any common open space, the Mayor and Council may serve written notice and may take legal steps to correct problem.

7.12.11 Blocks within a Planned Small Community.

- 7.12.11.01 The street system shall be designed to create blocks that are generally rectilinear in shape; to the greatest extent possible. Blocks shall be designed to have a maximum length of four hundred eighty (480) feet.
- 7.12.11.02 Each block shall be designated with a build-to-line which shall establish the front yard setback for the lots on the block.
- 7.12.11.03 Lot areas and widths shall vary at random to the greatest extent possible, in order to eliminate the appearance of a standardized subdivision; to the extent possible, no more than two (2) lots in a row shall have the same width, and lot widths shall vary by a minimum of five (5) foot increments.

7.12.12 Streets within a Planned Small Community.

- 7.12.12.01 Street layout shall be a modified grid street pattern adapted to the topography, unique natural features, environmental constraints of the tract, and peripheral open space areas.
- 7.12.12.01.01 The street layout shall take into consideration the location of the community focus, other internal open space areas, gateways, and vistas.
- 7.12.12.01.02 There shall be a minimum of two (2) interconnections with the existing public street system.
- 7.12.12.01.03 There shall be, to the maximum extent possible, linkages to adjacent developments and neighborhoods consisting of pedestrian and bicycle paths.
- 7.12.12.02 Street layout shall form an interconnected system of streets primarily in a rectilinear grid pattern, modified, however, to avoid a monotonous pattern.

- 7.12.12.02.01 The use of cul-de-sacs and other roadways with a single point of access shall be minimized.

- 7.12.12.02.02 To the greatest extent possible, streets shall be designed to have a maximum length of six hundred (600) feet.

- 7.12.12.03 Street layout shall incorporate a hierarchy of street types as specified. The following shall represent the hierarchy of street types:

- 7.12.12.03.01 Lane or alley.

- 7.12.12.03.02 Two-way residential street.

- 7.12.12.03.03 Commercial mixed use street (Main Street).

- 7.12.12.03.04 Two lane arterial.

- 7.12.12.04 Requirements for each street type

- 7.12.12.04.01 Lane or alley.

- 7.12.12.04.01.01 Paved width - eighteen (18) feet.

- 7.12.12.04.01.02 Right-of-way width - thirty-six (36) feet.

- 7.12.12.04.01.03 Parking allowances - No on-street parking shall be allowed.

- 7.12.12.04.01.04 Design Speed - 10 m.p.h.

- 7.12.12.04.01.05 Curbing requirements - Curbing shall be required.

- 7.12.12.04.02 Two-way residential street.

- 7.12.12.04.02.01 Paved width - twenty-four (24) feet.

- 7.12.12.04.02.02 Right-of-way width - fifty (50) feet.

- 7.12.12.04.02.03 Parking allowances - No on-street parking shall be allowed.

- 7.12.12.04.02.04 Design Speed - 25 m.p.h.

- 7.12.12.04.02.05 Curbing requirements - Curbing shall be required.
- 7.12.12.04.03 Commercial mixed use street.
 - 7.12.12.04.03.01 Paved width - thirty-four (34) feet.
 - 7.12.12.04.03.02 Right-of-way width - sixty-four (64) feet.
 - 7.12.12.04.03.03 Parking allowances - On-street parking is permitted.
 - 7.12.12.04.03.04 Design Speed - 25 m.p.h.
 - 7.12.12.04.03.05 Curbing requirements - Curbing is required.
- 7.12.12.04.04 Two way arterial street.
 - 7.12.12.04.04.01 Paved width - Twenty-four (24) feet.
 - 7.12.12.04.04.02 Right-of-way width - Seventy (70) feet.
 - 7.12.12.04.04.03 Parking allowances - On-street parking is not permitted.
 - 7.12.12.04.04.04 Design Speed - 15 m.p.h.
 - 7.12.12.04.04.05 Curbing requirements - Curbing is required.

7.12.13 Residential Development within a Planned Small Community.

- 7.12.13.01 The maximum allowable number of units and corresponding non- residential uses shall be determined by a development suitability analysis of the land characteristics, septic, sewage and water availability.
- 7.12.13.02 The range of residential zoning densities shall be 0.25 dwelling units per acre to six (6) dwelling units per acre.
- 7.12.13.03 A range of residential dwelling types shall be provided.
 - 7.12.13.03.01 The number of single family detached dwellings shall range from a minimum of sixty-five percent (65%) to a maximum of ninety percent (90%).

- 7.12.13.03.02 Of the remaining number of dwellings, no more than seventy-five percent (75%) shall be the same type of dwelling unit
- 7.12.13.04 Residential net density shall generally decrease from the community green and/or center-core towards the periphery of the small community.
 - 7.12.13.04.01 The segregation of different dwelling unit types is discouraged and different types of dwelling units may be mixed in any distribution within any single block
 - 7.12.13.04.02 Very large lot, single family detached dwelling, including accessory dwellings, shall be the only dwelling type permitted further than fifteen hundred (1,500) feet from the community green
- 7.12.13.05 Buildings shall be designed in conformance to the selected design vocabulary.
 - 7.12.13.05.01 Building designs shall vary in terms of footprint, architectural elevations, fenestration, type of roof, height, front entrance, and porch locations.
 - 7.12.13.05.02 Colors, materials, and architectural details should be limited in number, compatibility, and repetition throughout the neighborhood.
- 7.12.13.06 Accessory dwellings shall be limited to eight hundred fifty (850) square feet in floor area and, for the purposes of calculating residential density, each accessory dwelling shall count as one half (½) dwelling unit.
- 7.12.13.06.01 There shall not be more than one accessory dwelling located on a lot in addition to the single family dwelling
- 7.12.13.07 Apartment dwellings located on upper floors above commercial uses shall be a minimum of one thousand (1,000) square feet in gross floor area, and for the purposes of calculating residential density, each such apartment dwelling shall count as one half (½) dwelling unit.
- 7.12.13.07.01 Elevator access shall be provided for eight (8) or more interconnected units.

7.12.13.08 All residential units shall be raised above the level of the adjacent sidewalk as specified for the various street types.

7.12.13.09 A minimum of fifty percent (50%) of all dwelling units shall have a clearly defined front yard using landscaping, hedging, fencing, or a brick or stone wall, none of which shall exceed three (3) feet in height.

7.12.13.09.01 Front yards of attached duplexes or townhouses may be unified into one common yard treated as a single front yard for the entire building

7.12.13.09.02 A minimum of fifty percent (50%) of all dwelling units shall have a front entrance articulated with a covered front entry porch

7.12.13.10 All dwelling units shall have a private yard or patio a minimum of four hundred (400) square feet in area and enclosed by a masonry wall, wooden fence, trellis or lattice, evergreen hedge, vines, or some combination thereof.

7.12.13.10.01 The height of such yard or patio enclosure shall not exceed six (6) feet and shall be suitable to provide privacy and screen views of neighboring uses

7.12.14 Commercial Development within a Planned Small Community.

7.12.14.01 The commercial density of a planned small community shall range from a minimum of one hundred twenty-five (125) square feet of commercial floor area per residential dwelling unit to a maximum of three hundred (300) square feet.

7.12.14.01.01 Local convenience retail component shall be twenty-five (25) to fifty (50) square feet per unit.

7.12.14.01.02 Office and service component shall be one hundred (100) to two hundred fifty (250) square feet per unit.

7.12.14.01.03 In DAC or CAC districts additional density in commercial development may be allowed.

7.12.14.02 The commercial component shall consist of a minimum of fifty percent (50%) commercial uses which are primarily oriented to serve the residents of the small community.

7.12.14.03 Commercial components shall front on the interior streets of the small community.

7.12.14.03.01 Commercial uses *may* be mixed and integrated with dwelling units and public and semi-public uses, community clubs, and community facilities, with the approval of the Mayor and Council.

7.12.14.03.02 The greatest concentration of commercial development shall be located around a community green and/or within a main street commercial area

7.12.14.04 Commercial uses shall be contained in multi-story, mixed use structures with commercial/retail uses on the ground level and apartment dwellings or offices on the upper levels.

7.12.14.05 Corner stores may be located in residential areas of the small community away from the core.

7.12.14.06 Restaurants shall be permitted to operate outdoor cafes on sidewalks, including areas within the public right-of-way and in courtyards, provided that pedestrian circulation and access to store entrances shall not be impaired.

7.12.15 Sidewalks and Bikeways.

7.12.15.01 A sidewalk network shall be provided throughout the development that interconnects all dwelling units with other units, non-residential uses, and common open space.

7.12.15.02 Sidewalks shall be a minimum of four (4) feet in width, expanding to six (6) feet along major pedestrian routes; sidewalks in commercial areas shall be between eight (8) and fifteen (15) feet in width.

7.12.15.02.01 Sidewalks shall be constructed of brick, slate, colored/textured concrete pavers, concrete containing accents of brick, or some combination thereof that is compatible with the style, materials, colors, and details of the surrounding buildings.

7.12.15.03 Walkways shall be raised and curbed along buildings and within parking lots, where suitable.

7.12.15.03.01 All parking lots shall provide for pedestrian traffic.

7.12.15.03.02 All sidewalks and other pedestrian walkways shall have appropriate lighting.

7.12.15.03.02 Pedestrian street crossings shall be clearly delineated by a change in pavement color and/or texture.

7.12.15.04 Bikeways shall be provided, where possible, to link internal open space areas with peripheral open space areas.

7.12.15.04.01 Bikeways shall be a minimum of six (6) feet wide and may use asphalt paving.

7.12.15.04.02 Bike racks shall be provided in internal open space areas and recreation areas in the peripheral open space

7.12.16 Area and Bulk Regulations.

7.12.16.01 Large lot single family detached dwellings

7.12.16.01.01 Minimum lot area: Fifteen thousand (15,000) square feet.

7.12.16.01.02 Minimum lot width at front yard setback line: sixty-five (65) feet.

7.12.16.01.03 Minimum lot depth: one hundred twenty (120) feet.

7.12.16.01.04 Minimum yard dimensions

7.12.16.01.04.01 Build-to line: twenty-five (25) feet unless specified in the regulating plan or street sections.

7.12.16.01.04.02 Front yard: minimum of ten (10) feet with a maximum of twenty (20) feet.

7.12.16.01.04.03 Side yard (each side): ten (10) feet.

7.12.16.01.04.04 Rear yard: fifty (50) feet.

7.12.16.01.05 Build-up line: 2 ½ stories first finished floor level must be a minimum of two feet above sidewalk grade.

7.12.16.01.05.01 Maximum building height: forty (40) feet.

7.12.16.01.06 Maximum building coverage: Twenty-five percent (25%).

7.12.16.01.07 Minimum non-impervious surface: Fifty percent (50%).

7.12.16.01.08 Rear or side yard garage required.

7.12.16.01.09 Bulk standards for accessory dwelling: an accessory dwelling located on the same lot as a large single family dwelling, whether attached or detached to same, shall additionally comply with the bulk standards as specified above without modification, except that a detached accessory dwelling shall be limited to a maximum building height of twenty-five (25) feet.

7.12.16.02 Small lot single family detached dwellings.

7.12.16.02.01 Lot area: a minimum of five thousand (5,000) square feet and a maximum of ten thousand (10,000) square feet.

7.12.16.02.02 Lot width at front yard setback line: minimum of fifty (50) feet, maximum of sixty-five (65) feet.

7.12.16.02.03 Minimum lot depth: one hundred (100) feet.

7.12.16.02.04 Yard dimensions.

7.12.16.02.04.01 Build-to line: fifteen (15) feet unless specified in the regulating plan.

7.12.16.02.04.02 Front yard: minimum of ten (10) feet, maximum of twenty-five (25) feet.

7.12.16.02.04.03 Side yard (each side): minimum of six (6) feet, maximum of twenty (20) feet.

7.12.16.02.04.04 Rear yard: minimum of twenty-five (25) feet.

7.12.16.02.05	Build-up line: two (2) stories, first finished floor level must be a minimum of two (2) feet above sidewalk grade	7.12.16.03.04.03	Side yard (one side): minimum of six (6) feet, maximum of twenty (20) feet.
7.12.16.02.05.01	Maximum building height: thirty-five (35) feet.	7.12.16.03.04.04	Rear yard: minimum of twenty-five (25) feet.
7.12.16.02.06	Maximum building coverage: forty percent (40%).	7.12.16.03.05	Build-up line: two (2) stories, first finished floor level must be a minimum of two (2) feet above sidewalk grade
7.12.16.02.07	Minimum non-impervious area: fifty percent (50%).	7.12.16.03.05.01	Maximum building height: thirty-five (35) feet.
7.12.16.02.08	Rear yard parking required alley optional	7.12.16.03.06	Maximum building coverage: forty percent (40%).
7.12.16.02.09	Minimum size of dwelling house: 1,600 square feet.	7.12.16.03.07	Minimum non-impervious surface: fifty percent (50%).
7.12.16.02.10	Additional standards for accessory dwellings: an accessory dwelling located on the same lots as a small lot, detached single family dwelling, whether attached or detached to same, shall additionally comply with the standards as specified above without modification, except that a detached accessory dwelling shall be limited to a maximum building height of twenty-five (25) feet	7.12.16.03.08	Minimum size of dwelling house: 1,600 square feet.
7.12.16.03	Single family semi-detached dwellings.	7.12.16.03.09	Rear yard or side yard parking required, alley access optional.
7.12.16.03.01	Lot area: minimum of three thousand (3,000) square feet per dwelling unit or attached office commercial, maximum of six thousand (6,000) square feet per dwelling unit/office commercial.	7.12.16.03.10	Attached structure shall be subordinate to the main structure characterized at minimum by a lower ridge line.
7.12.16.03.02	Lot width at front yard setback line: minimum of forty (40) feet, maximum of eighty (80) feet per dwelling unit.	7.12.16.04	Duplex Dwellings.
7.12.16.03.03	Minimum lot depth: one hundred (100) feet.	7.12.16.04.01	Lot area: minimum of three thousand (3,000) square feet per dwelling unit and a maximum of five thousand (5,000) square feet per dwelling unit.
7.12.16.03.04	Yard dimensions.	7.12.16.04.02	Lot width at front yard setback line: minimum of thirty (30) feet per dwelling unit, maximum of fifty (50) feet per dwelling unit.
7.12.16.03.04.01	Build-to line: fifteen (15) feet unless specified in the regulating plan.	7.12.16.04.03	Minimum lot depth: one hundred (100) feet.
7.12.16.03.04.02	Front yard: minimum of ten (10) feet, maximum of twenty-five (25) feet.	7.12.16.04.04	Yard dimensions.
		7.12.16.04.04.01	Build-to line: fifteen (15) feet or as specified in the regulating plan.

7.12.16.04.04.02	Front yard: minimum of ten (10) feet and a maximum of twenty (20) feet.	7.12.16.05.04.03	Side yard (each end of row): minimum of eight (8) feet, maximum of twelve (12) feet.
7.12.16.04.04.03	Side yard (one side): minimum of four (4) feet and a maximum of ten (10) feet.	7.12.16.05.04.04	Rear yard: a minimum of twenty-five (25) feet.
7.12.16.04.04.04	Rear yard: minimum of twenty-five (25) feet.	7.12.16.05.05	Build-up line: 2 ½ stories, first finished floor level must be a minimum of two (2) feet above sidewalk grade.
7.12.16.04.05	Build-up line: two (2) stories, first finished floor level must be a minimum of two (2) feet above sidewalk grade.	7.12.16.05.05.01	Maximum building height: thirty-five (35) feet.
7.12.16.04.05.01	Maximum building height: thirty-five (35) feet.	7.12.16.05.06	Maximum building coverage: sixty percent (60%).
7.12.16.04.06	Maximum building coverage: fifty percent (50%).	7.12.16.05.07	Minimum non-impervious surface: thirty percent (30%).
7.12.16.04.07	Minimum open area: forty percent (40%).	7.12.16.05.08	Maximum building site: four (4) dwelling units in a row and one hundred (100) feet in length.
7.12.16.04.08	Minimum size of dwelling house: 1,400 square feet.	7.12.16.05.09	Minimum interior yards (open space between buildings on the same lot): thirty (30) feet.
7.12.16.04.09	Rear yard parking and alley required	7.12.16.05.10	Rear yard garage and alley required.
7.12.16.05	Townhouse (Rowhouse) Dwellings.	7.12.16.05.11	Minimum size of dwelling house: 1,400 square feet.
7.12.16.05.01	Lot area: minimum of one thousand eight hundred (1,800) square feet per dwelling unit and a maximum of four thousand five hundred (4,500) square feet per dwelling unit.	7.12.16.06	Apartment Dwellings.
7.12.16.05.02	Lot width at front yard setback line: a minimum of twenty (20) feet per dwelling unit and a maximum of thirty (30) feet per dwelling unit.	7.12.16.06.01	Minimum lot area: eight thousand eight hundred (8,800) square feet.
7.12.16.05.03	Maximum lot depth: one hundred (100) feet.	7.12.16.06.02	Lot width: a minimum of eighty (80) feet and a maximum of one hundred fifteen (115) feet.
7.12.16.05.04	Yard dimensions.	7.12.16.06.03	Minimum lot depth: a minimum of one hundred ten (110) feet and a maximum of one hundred fifty (150) feet.
7.12.16.05.04.01	Build-to line: ten (10) feet or as specified in the regulating plan.	7.12.16.06.04	Yard dimensions.
7.12.16.05.04.02	Front yard: a minimum of five (5) feet and a maximum of twenty (20) feet.	7.12.16.06.04.01	Build-to line: fifteen (15) feet or as specified in the regulating plan.

- 7.12.16.6.04.02 Front yard: minimum of ten (10) feet and a maximum of twenty (20) feet.
- 7.12.16.06.04.03 Side yard (each side): minimum of ten (10) feet.
- 7.12.16.06.04.04 Rear yard: minimum of fifty-five (55) feet.
- 7.12.16.06.05 Build-up line: three (3) stories, first finished floor level must be a minimum of two (2) feet above sidewalk grade.
- 7.12.16.06.05.01 Maximum building height: forty-two (42) feet.
- 7.12.16.06.06 Maximum building coverage: sixty percent (60%).
- 7.12.16.06.07 Minimum non-impervious area: thirty percent (30%).
- 7.12.16.06.08 Maximum building size: eight (8) dwelling units in a building and ninety-five (95) feet in length.
- 7.12.16.06.09 Minimum interior yards (open space between buildings on the same lot): twenty (20) feet.
- 7.12.16.06.10 Rear yard parking and alley access are required.
- 7.12.16.06.11 Minimum size of dwelling house: 1,200 square feet.

7.12.16.07 Commercial Uses and Mixed-Use Buildings.

- 7.12.16.07.01 Lot area: minimum of two thousand five hundred (2,500) square feet and a maximum of sixteen thousand (16,000) square feet.
- 7.12.16.07.02 Lot width at front yard setback line: minimum of twenty-five (25) feet and a maximum of eighty (80) feet.
- 7.12.16.07.03 Minimum lot depth: one hundred (100) feet.
- 7.12.16.07.04 Yard dimensions.

- 7.12.16.07.04.01 Build-to line.

- 7.12.16.07.04.01.01 Commercial/retail: zero (0) feet.
- 7.12.16.07.04.01.02 Mixed-use, retail/office: four (4) feet.
- 7.12.16.07.04.01.03 Mixed-use, retail/residential: four (4) feet.

- 7.12.16.07.04.02 Front yard: a minimum of zero (0) feet, maximum of ten (10) feet.
- 7.12.16.07.04.03 Side yard (each side): a minimum of zero (0) feet, if attached to an adjacent building or a minimum of five (5) feet if not attached to an adjacent building; maximum of twenty (20) feet.
- 7.12.16.07.04.04 Rear yard: a minimum of fifty-five (55) feet (one row of parking).

- 7.12.16.07.05 Build-up line: three (3) stories, finished first floor must be level with sidewalk.

- 7.12.16.07.05.01 Maximum building height: forty-five (45) feet

- 7.12.16.07.06 Maximum building coverage: seventy percent (70%).

- 7.12.16.07.07 Minimum non-impervious area: ten percent (10%).

- 7.12.16.07.08 Maximum building size: one hundred (100) feet in length, including adjacent buildings on adjacent lots if attached thereto.

- 7.12.16.07.09 Minimum interior yards (open space between buildings on the same lot): fifteen (15) feet.

- 7.12.16.07.10 All off-street parking must be in rear yards. Alleys are recommended.

7.12.16.08 Community Facilities and Institutional and Religious Buildings.

7.12.16.08.01 Lot area: a minimum of ten thousand (10,000) square feet and a maximum of forty thousand (40,000) square feet.

7.12.16.08.02 Lot width at front yard setback line: a minimum of eighty (80) feet and a maximum of one hundred fifty (150) feet.

7.12.16.08.03 Minimum lot depth: one hundred (100) feet.

7.12.16.08.04 Yard dimensions.

7.12.16.08.04.01 Build-to line.

7.12.16.08.04.01.01 Community facilities: fifteen (15) feet.

7.12.16.08.04.01.02 Religious: twenty-five (25) feet.

7.12.16.08.04.01.03 Institutional: twenty (20) feet.

7.12.16.08.04.02 Side yard (each side): minimum of fifteen (15) feet and a maximum of thirty (30) feet.

7.12.16.08.04.03 Rear yard: a minimum of (seventy-five) 75 feet.

7.12.16.08.05 Build-up line: three (3) stories.

7.12.16.08.05.01 Maximum building height: forty-five (45) feet.

7.12.16.08.05.02 Steeples or decorative towers: seventy-five (75) feet.

7.12.16.08.06 Maximum building coverage: seventy percent (70%).

7.12.16.08.07 Minimum non-impervious area: twenty percent (20%).

7.12.16.08.08 Maximum building size: one hundred (100) feet in length, including adjacent buildings on adjacent lots if attached thereto.

7.12.16.08.09 Minimum interior yards (open space between buildings on the same lot): fifteen (15) feet.

7.12.16.08.10 All off-street parking must be in the rear yards. Alleys are recommended.

7.12.17 **Parking Requirements.**

7.12.17.01 Off-street parking shall be provided according to minimum requirements.

7.12.17.02 On-street parking requirements. No on-street parking is permitted.

7.12.17.03 Parking for all dwelling units shall be prohibited in front yard setback areas.

7.12.17.04 Parking lot landscaping, buffering, and screening requirements.

7.12.18 **Required Loading and Service Areas.**

7.12.18.01 When required, loading docks, solid waste facilities, recycling facilities, and other service areas shall be placed to the rear or side of the buildings in visually unobtrusive locations.

7.12.18.02 Screening and landscaping shall prevent direct views of the loading areas and their driveways from adjacent properties or from the public right-of-way.

7.12.19 **Floodplain/wetlands preservation requirements.** Any planned small community must meet all federal and state requirements relating to floodplains and wetlands. The City Council encourages preservation of wetlands areas. Floodplains may not be used for calculating site density. However, floodplain areas may be utilized in meeting open space requirements.

7.12.20 **Signs.** Unless otherwise provided herein, all signs within a planned small community shall adhere to the requirements of §11.04.

7.12.21 **Neighborhood Design Standards and Guidelines.**

7.12.21.01 All buildings and structures located within a planned small community shall adhere as closely as possible to a common design scheme.

- 7.12.21.02 Buildings located at gateways entering the planned residential development shall mark the transition into and out of the neighborhood in a distinct fashion.
- 7.12.21.03 Focal points, or points of visual termination, shall generally be occupied by more prominent, monumental buildings.
- 7.12.21.04 Buildings shall be located to front towards and relate to public streets, both functionally and visually.
- 7.12.21.05 Spatial relationships between buildings and other structures shall be geometrically logical and/or architecturally formal.

7.12.22 Landscaping Requirements.

- 7.12.22.01 Extensive landscaping shall be required in accordance with a landscape plan conceived for the planned small community as a whole.
- 7.12.22.02 Landscaping plans shall be prepared by a certified professional in the field of landscape architecture.
- 7.12.22.03 Within two (2) years from the time of planting, all dead or dying plants, installed new, transplanted, or designated as existing trees to be retained on the plan, shall be replaced by the developer; trees or other vegetation which die after the second year shall be replaced and maintained by the property owners association.

7.12.23 Detention Basins. Detention basins, headwalls, outlet structures, concrete flow channels, rip rap channels, and other drainage improvements shall be screened with plant material, landscaped buffers and/or berms.

7.12.24 Arboreal Requirements. Shade trees shall be provided at regular intervals along each side of all streets, public or private, existing or proposed.

7.12.25 Lighting Requirements.

- 7.12.25.01 Any project permitted within a TND District which proposes a lighted facility must have an approved lighting plan in accordance with the minimum conditions listed in § 10.03.

- 7.12.25.02 Street lights shall be decorative and blend with the architectural style of the small community.
- 7.12.25.03 Use of minimum wattage metal halide or color corrected sodium light sources is encouraged; non-color corrected low pressure sodium and mercury vapor light sources are prohibited.

7.12.26 Design Vocabulary. A design vocabulary shall be established for each neighborhood and shall include the general design qualities as well as the specific architectural standards to be used.

All ordinances and parts of ordinances in conflict herewith are hereby repealed.

This Ordinance shall become effective as of the date of its passage by the Mayor and Council.

SO ORDAINED this 21st day of August, 2000.

Brad A. Hulsey, Mayor

Patricia C. Vaughn, Council Member

Gary V. Noriega, Council Member

Nancy B. Arnold, Council Member

Thomas D. Bevirt, Council Member

James R. Farmer, Council Member

ATTEST:

Betty Brady, City Clerk

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D. Complete Streets Policy Elements



NATIONAL COMPLETE STREETS COALITION
1707 L ST NW, SUITE 250 • WASHINGTON DC 20036

www.completestreets.org • p: 202-955-5543 • f: 202-955-5592 • e: info@completestreets.org

ELEMENTS OF AN IDEAL COMPLETE STREETS POLICY

Regardless of a policy's form, the National Complete Streets Coalition has identified ten elements of a comprehensive Complete Streets policy, as discussed below. For examples of strong policy language, see our current Policy Analysis report: <http://www.completestreets.org/policyanalysis>

- Includes a vision for how and why the community wants to complete its streets
- Specifies that 'all users' includes pedestrians, bicyclists and transit passengers of all ages and abilities, as well as trucks, buses, emergency vehicles, and automobiles.
- Encourages street connectivity and aims to create a comprehensive, integrated, connected network for all modes.
- Is understood by all agencies to cover all roads.
- Applies to both new and retrofit projects, including design, planning, maintenance, and operations, for the entire right of way.
- Makes any exceptions specific and sets a clear procedure that requires high-level approval of exceptions.
- Directs the use of the latest and best design criteria and guidelines while recognizing the need for flexibility in balancing user needs.
- Directs that Complete Streets solutions will complement the context of the community.
- Establishes performance standards with measurable outcomes.
- Includes specific next steps for implementation of the policy

Sets a vision

A strong vision can inspire a community to follow through on its Complete Streets policy. Just as no two policies are alike, visions are not one-size-fits-all either. In the small town of Decatur, GA, the Community Transportation Plan defines their vision as promoting health through physical activity and active transportation. In the City of Chicago, the Department of Transportation focuses on creating streets safe for travel by even the most vulnerable - children, older adults, and those with disabilities.

Specifies all users

A true Complete Streets policy must apply to everyone traveling along the road. A sidewalk without curb ramps is useless to someone using a wheelchair. A street with an awkwardly placed public transportation stop without safe crossings is dangerous for riders. A fast-moving road with no safe space for cyclists will discourage those who depend on bicycles for transportation. A road with heavy freight traffic must be planned with those vehicles in mind. Older adults and children face particular challenges as they are more likely to be seriously injured or killed along a roadway.

Automobiles are an important part of a complete street as well, as any change made to better accommodate other modes will have an effect on personal vehicles too. In some cases, like the installation of curb bulb-outs, these changes can improve traffic flow and the driving experience.

Creates a network

Complete Streets policies should result in the creation of a complete transportation network for all modes of travel. A network approach helps to balance the needs of all users. Instead of trying to make each street perfect for every traveler, communities can create an interwoven array of streets that emphasize different modes and provide quality accessibility for everyone. This can mean creating bicycle boulevards to speed along bicycle travel on certain low-traffic routes; dedicating more travel lanes to bus travel only; or pedestrianizing segments of routes that are already overflowing with people on foot. It is important to provide basic safe access for all users regardless of design strategy and networks should not require some users to take long detours.

All agencies and all roads

Creating street networks that are safe and accessible for all users is difficult because many agencies control our streets. They are built and maintained by state, county, and local agencies, and private developers often build new roads. Typical Complete Streets policies cover only one jurisdiction's roadways, which can cause network problems: a bike lane on one side of a bridge disappears on the other because the road is no longer controlled by the agency that built the lane. Policies should address how to work with other agencies and jurisdictions. Another common issue to resolve how to include elements of your Complete Streets policy in subdivision regulations, which govern how private developers build new streets.

All projects

For many years, multi-modal streets have been treated as 'special projects' requiring extra planning, funding, and effort. The Complete Streets approach is different. Its intent is to view all transportation improvements as opportunities to create safer, more accessible streets for all users, including pedestrians, cyclists, and public transportation passengers. Under this approach, even small projects can be an opportunity to make meaningful improvements. In repaving projects, for example, an edge stripe can be shifted to create more room for cyclists. In routine work on traffic lights, the timing can be changed to better accommodate pedestrians walking at a slower speed. A strong Complete Streets policy will integrate Complete Streets planning into all types of projects, including new construction, reconstruction, rehabilitation, repair, and maintenance.

Exceptions

Making a policy work in the real world requires developing a process to handle exceptions to providing for all modes in each project. The Federal Highway Administration's guidance on accommodating bicycle and pedestrian travel named three exceptions that have become commonly used in Complete Streets policies: 1) accommodation is not necessary on corridors where non-motorized use is prohibited, such as interstate freeways; 2) cost of accommodation is excessively disproportionate to the need or probable use; 3) a documented absence of current or future need. Many communities have included their own exceptions, such as severe topological constraints. In addition to defining exceptions, there must be a clear process for granting them, where a senior-level department head must approve them. Any exceptions should be kept on record and publicly-available.

Design criteria

Communities adopting a Complete Streets policy should review their design policies to ensure their ability to accommodate all modes of travel, while still providing flexibility to allow designers to tailor the project to unique circumstances. Some communities will opt to re-write their design manual. Others will refer to existing design guides, such as those issued by AASHTO, state design standards, and the Americans with Disabilities Act Accessibility Guidelines.

Context-sensitive

An effective Complete Streets policy must be sensitive to the community context. Being clear about this in the initial policy statement can allay fears that the policy will require inappropriately wide roads in quiet neighborhoods or miles of little-used sidewalks in rural areas. A strong statement about context can help align transportation and land use planning goals, creating livable, strong neighborhoods.

Performance measures

The traditional performance measure for transportation planning has been vehicular Level of Service (LOS) – a measure of automobile congestion. Complete Streets planning requires taking a broader look at how the system is serving all users. Communities with Complete Streets policies can measure success through a number of ways: the miles of on-street bicycle routes created; new linear feet of pedestrian accommodation; changes in the number of people using public transportation, bicycling, or walking (mode shift); number of new street trees; and/or the creation or adoption of a new multi-modal Level of Service standard that better measures the quality of travel experience. The fifth edition of Highway Capacity Manual will include this new way of measuring LOS. Cities like San Francisco and Charlotte have already begun to develop their own.

Implementation

Taking a Complete Streets policy from paper into practice is not easy, but providing some momentum with specific implementation steps can help. Some policies establish a task force or commission to work toward policy implementation. There are four key steps for successful implementation: 1) Restructure procedures to accommodate all users on every project; 2) Develop new design policies and guides; 3) Offer workshops and other training opportunities to planners and engineers; and 4) Institute better ways to measure performance and collect data on how well the streets are serving all users.



Complete Streets Implementation:
A Brief Guidebook



Summary

You have a Complete Streets policy: now what? Implementing any policy is challenging and Complete Streets policies add additional layers of complexity, including education to a diverse constituency, selecting projects that address your policy's goals, and ultimately funding and maintaining these projects. The following guide can assist your team as you look to navigate the public process for Complete Street implementation. It includes customizable ideas to help manage culture shift, educational resources to teach different stakeholders best practices, and ideas to continuously provide the best possible Complete Streets through key performance indicators.

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Planning for Implementation

A conscious implementation process identifies all the systems, routines, silos, and assumptions that, together, have created the current transportation system. Communities have found it easier to understand the world of possible activities by assessing and understanding the current procedures and processes; planning for clear next steps; and establishing a person or group of people who can help guide implementation efforts within and across departments and agencies.

Successful Complete Streets implementation should include **strengthening relationships** between city departments; between elected officials and departments; and between citizens and transportation professionals. A first step in this process can be a [Complete Streets Implementation Workshop](#), which brings together people from all departments with some interest in transportation, such as planning, public works/transportation, transit, parks, and health as well as key outside interests, such as concerned elected officials and engaged advocacy groups. This understanding can also come about when people from different agencies, departments, and interest groups meet as part of a committee or advisory board charged with implementing the policy.

The Complete Streets policy document itself should **designate a person or committee to lead implementation**. If it has not, champions should see this as a first order of business.

While most communities have centered their implementation planning on committee activities or on updating specific documents or design guidance, some communities have written **formal implementation plans**. Creating an implementation plan or framework can maintain the momentum picked up during policy adoption, and it can help partners who were active in policy adoption remain engaged as the focus shifts to implementation. The creation of such a plan should involve people across the transportation agency, from planners to engineers to maintenance staff, in the decision-making process. An implementation plan provides the opportunity to assess current practices, to assign responsibility for the following activities in this report, and to create estimated timelines for accomplishing those tasks. The community can use the resulting document as a tool to communicate its work with other agencies, with community leaders, and with supporters.

Possible Activities

- Designate a lead person or “champion” to guide the process.
 - Create a committee to guide the implementation process.
 - Use an “internal” committee with representation from multiple departments within an agency and other city/state departments such as public health, planning, economic development, and transit.
- Use an “external” committee with representation from city agencies, bicycle advocates, pedestrian advocates, older adult groups, and disability groups.
- Task an existing committee to with this task (e.g., bicycle and pedestrian advisory council).
- Conduct an audit of existing policies and procedures within the agency and jurisdiction that should be consistent with the Complete Streets policy. May include:
 - Procedures that do not yet consider all users of all ages and abilities as routine.
 - Current training processes.
 - Design standards and guides.
 - Current performance measures and outcomes.
- Develop an implementation plan, which could include:

- Designation of a person or committee responsible for implementation.
- A timeline for updating or revising existing policies or procedures documented in the above preparation step.
- Assigned responsibilities to specific people or departments.
- A reporting plan to inform elected officials, public and internal stakeholders about implementation progress.
- Report when documents listed from above are updated or revised.
- Require annual reports that include Complete Streets progress.

Best Practices

- Build relationships between agencies and stakeholders such as public health, law enforcement, and businesses.
- Having a champion is invaluable; designate a lead person, agency, and/or committee that will move the process forward.
- Formal advisory committees can be an effective catalyst for achieving other implementation steps.

Resources

Strategic & Implementation Plans

- [Complete Streets Implementation Work Plan](#), Minnesota Department of Transportation (October 2014)
- [Great Streets for Los Angeles Strategic Plan](#), Los Angeles
- [Sustainable Streets Strategic Plan](#), New York City
- [Complete Streets Implementation Action Plan 2.0](#), California Department of Transportation (November 2014)
- [FY12-13 Status Update](#), California Department of Transportation
- [Complete Streets Guidance Document](#), Vermont Agency of Transportation
- [Complete Streets Implementation Strategy](#), Regional Transportation Commission of Southern Nevada
- [Complete Streets Action Agenda and Design Guidelines](#), Oakland, California
- [Implementation Action Plan](#), Lee County, Florida
- [Complete Streets Plan](#), Saint Paul, Minnesota

Committees

- [Complete Streets Steering Committee Roster](#) (.doc), California Department of Transportation
- [Complete Streets Technical Advisory Committee Roster](#) (.doc), California Department of Transportation
- [Get Fit Kauai Built Environment Task Force](#), Kauai County, Hawaii
- [Complete Streets Committee](#), Lawrence, Kansas
- [Louisiana Complete Streets Work Group](#)
- [Complete Streets Advisory Committee](#), Boston
- [Minnesota Complete Streets Coalition](#)
- [Complete Streets Task Force](#), Hennepin County, Minnesota
- [Complete Streets Advisory Council](#), Kingston, New York

General

- [From Inspiration to Action: Implementing Projects to Support Active Living](#), Walkable and Livable Communities Institute and AARP

Changing Procedure and Process

“Complete Street design should be understood as a process, not a specific product.” —
Major and Collector Street Plan, Nashville

Changing the everyday processes that guide decision-making is at the heart of the Complete Streets movement. Changing the way planners and engineers do their jobs on a day-to-day basis is challenging, but is essential if Complete Streets plans or new design manuals are to do more than collect dust.

Implementing Complete Streets successfully requires **inclusive decision-making processes**. In many communities, Complete Streets implementation is delayed, or even derailed, by ‘silos’ that have been built within and between agencies. Such silos keep departments working independently from, and sometimes at odds with, each other — meaning the Complete Streets vision is interpreted differently or ignored completely. Simply bringing the right people together to discuss projects in light of Complete Streets is an important procedural step. It requires attention to who is involved with transportation projects as well as who *should* be involved. A committee can become a forum for this collaboration, so long as it includes representation from appropriate agencies and can influence their actions. Such committees are great for specific tasks, such as creating a specific plan or document.

Project-level teams that **bring together many departments** or agencies can also be influential in ensuring major work is done in the spirit of a Complete Streets policy. Such an approach is used in communities such as Seattle and Duluth, Minnesota. More sophisticated public involvement strategies should be employed by project-level teams, including design charrettes and regular interaction with residents and business owners.

To change processes, implementing agencies must **review the rules, procedures, and habits** that have typically guided them. Facilities for bicycling, walking, and taking and operating public transportation are simply not in some plans, codes, manuals, and other guiding documents. They can, and must, be added. Some communities do this systematically by reviewing all documents that might affect transportation. Others work through pilot projects, finding the issues that must be corrected as they work through the project.

Implementing Complete Streets requires that the **maintenance and operation procedures be updated** to look beyond automobile movement. Commonly, the only criteria for selecting and designing these projects is pavement condition and keeping costs low. However, such projects are often the most important — and frequent — opportunities to quickly create change within communities, since larger construction and reconstruction projects may take years to plan. Changes made during maintenance and operations adjustments are often inexpensive and tied to work that is already necessary. Many communities are now *planning ahead* for restriping of roadways following repaving and looking for opportunities to incorporate bicycle lanes, clearer pedestrian crossings, or improved parking. Communities can revise their paving plans so citizen groups and city planners can use the upcoming opportunities to suggest changes.

An agency committed to Complete Streets will need to **make changes to the way it selects its transportation projects**. Communities that rely on automobile Level of Service (LOS) should consider alternatives, such as relaxing LOS standards in some areas or at certain times; creating a different type of LOS that applies to all other modes; or switching to entirely different measurements such as Auto Trips Generated. Communities with mode-specific plans should

coordinate those efforts via an overarching street prioritization map and ensure that small improvements can be made on every project, not just on major routes identified in the documents. Agencies, especially Metropolitan Planning Organizations, can also employ a points system in selecting projects that reward multimodal inclusion. Equity — ensuring projects are distributed across neighborhoods regardless of income or ethnicity — must also be considered so as to avoid building out a great network in one neighborhood but nothing in the next.

Often, the most effective way to overcome barriers is to simply **create new systems**. Broadly, three commonly pursued tactics are: developing a strong exceptions review process; adopting project-specific checklists; and creating a new project development process. Complete Streets policies should spell out specific **exceptions** to the policy’s application, and successful implementation requires a system to determine when and how those exceptions are made. **Checklists** remind or require planners and engineers to consider the needs of all users as they go about their work, helping to provide appropriate solutions based on transportation and land use needs; collect and share information between departments; and illuminate the decisions to the public. By themselves, checklists are usually not enough to fundamentally change transportation planning. Communities can bring all the procedural changes together by creating entirely **new step-by-step project development processes**. The best-known example is the six-step process created by the Charlotte Department of Transportation in their [Urban Street Design Guidelines](#). The process starts by evaluating the existing land use and transportation context of the project; moves on to identifying gaps and deficiencies and defining future objectives; and then recommends a street classification and deliberates the tradeoffs that might need to be made.

Possible Activities

- Designate a lead person or “champion” to guide the process
- Create a list of all documents to be updated to be consistent with the Complete Streets policy.
- Modify department procedural documents. May include:
 - Checklists.
 - Decision trees.
 - Standard operating procedures.
 - Project development steps or phases.
- Include non-transportation departments (e.g. planning, environment) that have a role in street planning, design, operations, or maintenance or participates in the updating of:
 - Utilities’ street documents.
 - Plans, including neighborhood, area, redevelopment, urban forestry/street tree, and/or comprehensive plans.
 - Transit agency’s street and planning documents.
- Prioritize multi-modal projects by:
- Awarding points or otherwise prioritizing multimodal projects in project selection criteria.
 - Formally prioritizing multimodal projects in the capital improvement program (CIP) or transportation improvement program (TIP or STIP).
 - Prioritizing projects that are identified as closing gaps in the multimodal network.
- Change or create new project procedures at the following phases:
 - Planning,
 - Programming (including CIP/TIP decisions),
 - Scoping,
 - Design,
 - Construction,
 - Operation, and

- Maintenance.
- Ensure changes apply to all project types, including:
 - New construction,
 - Retrofitting/reconstruction,
 - Repair,
 - Resurfacing/restoration/**rehabilitation**,
 - Bridges,
 - Privately built roads,
 - Master planned neighborhoods and planned unit developments,
 - Infill,
 - Greenfield, and
 - Transit.
- Establish a process for allowing exceptions to the Complete Streets policy.
- Name a specific entity for approving exceptions (e.g., transportation director, city council, other committee or staff).
- Provide staff the decision-making power to be flexible and consider the land use context.
- Adopt or update relevant plans, such as:
 - Bicycle Master Plan,
 - Pedestrian Master Plan,
 - Transit Master Plan,
 - Non-Motorized Network Plan,
 - Transportation Plan,
 - Major Street Plan, and/or
 - General or Comprehensive Plan.
- Adopt or update relevant policies, including:
 - Education policies and activities,
 - Encouragement policies and activities,
 - Enforcement policies and activities, and
 - Multimodal Level of Service guidelines and criteria.
- Require consultants to use Complete Streets approach in project scope and/or consultant contracts.

Best Practices

- Encourage stronger relationships between departments, with citizens, and with elected officials.
- Try easier, smaller projects or those with obvious, visible benefits first.
- Keep a network approach in mind when selecting the first projects. New facilities won't be well used if they don't connect to destinations or other routes.
- Document results of early projects, including before-and-after studies of safety benefits if possible.

Resources

Checklists

- [Complete Streets Checklist](#), *Complete Streets Complete Networks – Chapter 5*, Active Transportation Alliance
- [Project Checklist](#), Seattle
- [Complete Streets Project Review Checklist](#), Philadelphia
- [Active Living Design Checklist](#), Hennepin County, Minnesota
- [Complete Streets Checklist for Project Sponsors](#), Mid-Ohio Regional Planning Commission

- (Columbus, Ohio region)
- [Complete Streets Checklist](#), New Jersey Department of Transportation
- [Complete Streets Planning Phase Checklist and Design Phase Checklist](#), Vermont Agency of Transportation
- [Complete Streets Checklist](#), Onalaska, Wisconsin
- [Complete Streets Checklist](#), Saratoga Springs, New York
- [Complete Streets Checklist](#), Metropolitan Transportation Commission (San Francisco region)
- [Complete Streets Checklist](#) (draft), Regional Transportation Commission of Southern Nevada
- [Complete Street Design Review Checklist](#) (draft), Dallas

Plans

- [Transportation Outlook 2040](#), Mid-America Regional Council (Kansas City, Missouri region)
- [Transportation Improvement Program 2012-2016](#), Mid-America Regional Council (Kansas City, Missouri region)
- [2030 Long-Range Transportation Plan](#), Nashville Area Metropolitan Planning Organization (Tennessee)
- [Sustainable Streets Strategic Plan](#), New York City
- [Active Transportation Plan](#), Forest Park, Illinois

Funding Priority Systems

- [Transportation Project Prioritization Technical Report](#) (draft), Oakland, California
- [Project Solicitation & Evaluation: Scoring Criteria](#), Mid-America Regional Council (Kansas City, Missouri area)
- [MPO Project Evaluation & Scoring Documentation](#), Nashville Metropolitan Planning Organization
- [Local Aid Program](#), New Jersey Department of Transportation
- [Transportation Factors for Highway Projects](#), Ohio-Kentucky-Indiana Regional Council of Governments (Cincinnati, Ohio region)

Process

- [Complete Streets Complete Networks](#), Active Transportation Alliance
- [Urban Street Design Guidelines](#), Charlotte, North Carolina
- [Complete Streets Guide](#), Maricopa Association of Governments (Phoenix, Arizona region)
- [Complete Streets Design Manual](#), New Haven, Connecticut
- [Project Development and Review Process](#), Boston

General

- [Complete Streets: Best Policy and Implementation Practices \(PAS 559\)](#), American Planning Association
- [The Role of Transportation Systems Maintenance and Operations in Supporting Livability and Sustainability: A Primer](#), Federal Highway Administration
- [From Policy to Pavement: Implementing Complete Streets in the San Diego Region](#), Walk San Diego
- [Complete Streets Implementation Resource Guide for Minnesota Local Agencies](#), Minnesota Department of Transportation

Offering Training and Educational Opportunities

A successful Complete Streets initiative requires ongoing education and training — and it is about far more than helping engineers learn how to incorporate bicycle and pedestrian facilities into road projects. Planners, engineers, consultants, and other agencies need a thorough understanding of new procedures. Elected officials need ongoing engagement to understand how the general policy goals will be translated into projects on the ground. And communication with the public about what they want out of their streets, and what is happening to their roads, is essential for implementation to be successful.

Many communities employ a workshop approach to help **transportation staff** understand and embrace the intention behind Complete Streets. They need to hear how this approach works in other communities, and how it fits into their professional goals and standards. The best messengers for these sessions are those within the same profession; engineers need to hear directly from other engineers, planners from other planners. Many agencies have also used a more informal, on-the-job training approach that encourages dialogue between departments. Additional technical training should be part of regular professional development.

Work with **elected officials, involved stakeholders, and the general public** must be ongoing. Transportation staff and Complete Streets supporters need to be able to communicate how the proposed projects benefit the community and nearby residents and businesses, and how incomplete streets negatively affect mobility and access to schools, offices, and shops. Regular updates on goals and successes are key. “Experiential” learning, through activities such as walking audits and bicycle tours, has been very helpful in building support and camaraderie among staff, elected officials, and community members. Some have also produced or shared short videos that focus on the health, economic, and safety benefits of changing street design.

Possible Activities

- Leadership sends a formal memo or email to staff about the new Complete Streets Policy.
- Conduct a formal staff training process, potentially through:
 - Staff retreats,
 - Series of Complete Streets specific training sessions,
 - Funded professional development with outside experts, and/or
 - On-the-job training.
- Conduct informal mentoring-training within the transportation department.
- Provide training on technical aspects of the policy (e.g. engineering/design).
- Provide training on non-technical aspects of the policy (e.g. process changes within the department to consider all users of all abilities).
- Provide training on non-transportation topics such as environment and public health benefits.
- Provide sensitivity training to learn about all users of the road such as those with disabilities.
- Training includes department heads, managers and program staff.
- Develop systematic training in incorporating all users of all abilities for new staff.
- Include multiple departments in training, such as utilities, public health, transit agencies and economic development.
- Engage with community to explain the importance of Complete Streets policy, when and how it will be applied, from a multi-disciplinary view. Engage through:
 - Public meetings,

- Presentations at city council meetings,
- Presentations at district offices that are open to the public,
- Video presentation available online,
- Printed materials such as newsletters, pamphlets, posters, and/or
- Walking and/or biking audits or tours.
- Educational campaigns, which may include information about new road markings and signs, coaching on sharing the road with other users, benefits of walking, biking, and taking public transportation.

Best Practices

- Community engineers and planners must hear from their professional peers.
- Strive to instill a sense that Complete Streets is part of everyone's job.
- Outreach to community members is an on-going process and must not end with a policy's adoption.
 - The first projects are the hardest to sell. Communicate on a project-by-project scale as well as in more general terms. Go to the public so they hear about the project and your goals directly from you first.
 - Start with temporary or pilot projects, or choose projects with relatively simple implementation; be sure to tie these projects back to the Complete Streets objective.
- Provide regular updates to community and agency elected officials and media on implementation and successes.
- Ask your Metropolitan Planning Organization to provide training for its member jurisdictions.
- Share project successes in the context of overall policy implementation.

Resources

Professional Training: Workshops

- [Complete Streets Checklist](#), *Complete Streets Complete Networks – Chapter 5*, Active Transportation Alliance
- [National Complete Streets Coalition Workshops](#)
- [Designing Pedestrian Facilities for Accessibility](#), Association of Pedestrian and Bicycle Professionals
- [Designing for Pedestrian Safety](#), Pedestrian and Bicycle Information Center
- [Planning and Designing for Pedestrian Safety](#), Pedestrian and Bicycle Information Center
- [Creating Livable Communities through Public Involvement](#), Pedestrian and Bicycle Information Center
- [Complete Streets Workshops](#), Massachusetts Department of Transportation
- [Complete Streets Training](#), North Carolina Department of Transportation
- [One Bay Area Grant: Complete Streets Policy Development Workshops](#), Metropolitan Transportation Commission (San Francisco region)/

Professional Training: Web-based

- [Webinars](#), Association of Pedestrian and Bicycle Professionals
- [Webinars](#), State Smart Transportation Initiative
- [Webinars](#), Pedestrian and Bicycle Information Center
- [Professional development opportunities](#), Institute of Transportation Engineers
- [Professional development opportunities](#), American Planning Association

Professional Training: Notable Conferences

- [Annual Meeting](#), Transportation Research Board

- [Pro Walk Pro Bike Conference](#), Project for Public Spaces
- [Professional Development Seminar](#), Association of Pedestrian and Bicycle Professionals
- [Technical Conference and Annual Meeting](#), Institute of Transportation Engineers
- [National Planning Conference](#), American Planning Association
- [New Partners for Smart Growth](#), Local Government Commission

Walking Audit

- [Walkability Checklist](#), Pedestrian and Bicycle Information Center
- [Walkability Workbook](#), Walkable and Livable Communities Institute
- [Walkability Audits with Dan Burden](#), Walkable and Livable Communities Institute
- [Walkable Community Workshops](#) with Mark Fenton

Pilot Projects, Demonstration Events, Programs, and Placemaking

- [Pavement-to-Parks program](#), San Francisco
- [Make Way for People Initiative](#), Chicago
- [Tactical Urbanism 2: Short Term Action, Long Term Change](#), Street Plans Collaborative
- [City Repair](#), Portland, Oregon
- [The Better Block: Rapid Urban Revitalization Projects](#)
- [The Open Streets Guide](#), Alliance for Biking & Walking and Streets Plans Collaborative
- [Resources for Organizers](#), Open Streets Project
- [“20 Is Plenty” program](#), Hoboken, New Jersey
- [“Neighborhood 25” program](#), Arlington, Virginia
- [Sustainable Jersey community certification](#), New Jersey

Public Information About Projects

- [Project webpages](#), Seattle
- [Project webpages](#), Boston
- [Current projects](#), New York City

General

- [Participation Tools for Better Community Planning](#), Local Government Commission, 2013

Reviewing and Updating Design Guidance

In many agencies, the street design manual is the go-to reference for all transportation projects. If it is not supportive of flexible, context-sensitive, and multi-modal approaches, it can be the largest barrier a community faces. A flexible manual can empower planners and engineers to develop design solutions that balance the needs of many users and support the surrounding neighborhood. Changes to the subdivision codes that apply to private development are also necessary to ensure that all new roadways and planned developments are aligned with the community's Complete Streets goals.

A number of agencies have undertaken **a complete rewrite** of their manuals, usually accompanied by developing new procedures and producing training to staff. The most innovative new manuals go beyond cross-sections to create new ways to tackle the connection between land use and transportation needs. These documents create new street typologies that provide greater nuance than is available through the traditional functional classification system, which defines roads exclusively by their function for automobiles. However, design manual re-writes can be expensive and time-consuming, and they still may not be enough to change the everyday workings of an agency.

Some places do not have their own design manuals, preferring to use a variety of national or state resources. **By referring to outside guidance**, these communities do not need to use significant resources to stay up on best practices and the latest design approaches. Instead, they opt to adapt or adopt the latest resources that best reflect their needs. Even in communities with their own design manuals, transportation staff will refer to national or state resources in addition to their own. **Project-based design decisions** can also be made through collaborative design charrettes, temporary installations, or opportune pilot projects.

Possible Activities

- Create new design guidelines, either as:
 - Entirely new document, or
 - A series of rules or recommended practices to augment existing guidance.
- Adopt or direct use of new standards, including the latest versions of:
 - AASHTO: A Policy on Geometric Design of Highways and Streets (“Green Book”),
 - AASHTO: Guide for Planning, Designing, and Operating Pedestrian Facilities,
 - AASHTO: Guide for the Development of Bicycle Facilities,
 - FHWA: Separated Bike Lane Planning and Design Guide
 - ITE: Designing Walkable Urban Thoroughfares: A Context Sensitive Approach,
 - NACTO: Urban Street Design Guide,
 - NACTO: Urban Bikeway Design Guide,
 - US Access Board: Public Right-of-Way Accessibility Guidelines, and/or
 - 2010 Highway Capacity Manual.
- Update street design standards that apply to:
- Private developers,
 - City-initiated projects, and
 - Contractors working in the right-of-way via permits.
- Provide relevant updates to:
- Land use standards and zoning codes,
 - Subdivision code,

- Motor vehicle parking policies,
- Bicycle parking policies,
- Traffic calming,
- Streetscape,
- Transit and station-area plans, and/or
- Recreation and parks maintenance plans for roads, sidewalks, medians, etc.
- Collaborate across departments to incorporate Complete Streets design guidance into utilities, planning, public transit, and/or other agencies dealing with roads.

Best Practices

- Consider making simple changes to design standards, or adopting templates such as the Model Design Manual for Living Streets or Complete Streets, Complete Networks.
- Take advantage of mill and overlay/repaving projects by planning, and even designing, ahead of time to include bicycle and walking needs in the process.
- Evaluate budgets to support maintenance needs, especially with roadway striping.
- Add an evaluation of bicycle and walking needs to the maintenance and operations review cycle.

Resources

National Guidance

- [A Policy on Geometric Design of Highways and Streets, 6th Edition](#), AASHTO
- [Guide for the Development of Bicycle Facilities, 4th Edition](#), AASHTO
- [Guide for the Planning, Design, and Operation of Pedestrian Facilities, 1st Edition](#), AASHTO
- [Separated Bike Lane Planning and Design Guide](#), Federal Highway Administration
- [Manual on Uniform Traffic Control Devices](#), Federal Highway Administration
- [Bicycle Facilities and the Manual on Uniform Traffic Control Devices](#), Federal Highway Administration
- [Public Rights of Way Accessibility Guidelines](#), U.S. Access Board
- [Memorandum: Bicycle and Pedestrian Facility Design Flexibility](#), Federal Highway Administration
- [Designing Walkable Urban Thoroughfares: A Context Sensitive Approach: An ITE Recommended Practice](#), Institute of Transportation Engineers and the Congress for the New Urbanism
- [Urban Bikeway Design Guide](#), National Association of City Transportation Officials
- [Urban Street Design Guide](#), National Association of City Transportation Officials
- [Highway Capacity Manual 2010](#), Transportation Research Board
- [Model Design Manual for Living Streets](#), Los Angeles County Department of Public Health
- [Complete Streets Complete Networks](#), Active Transportation Alliance

Agency-Specific Guides

- [Complete Streets Guidelines](#), Boston
- [Urban Street Design Guidelines](#), Charlotte
- [Complete Streets Guidelines](#), Chicago
- [Implementing Complete Streets: Major & Collector Street Plan](#), Nashville, Tennessee
- [Complete Streets Design Manual](#), New Haven, Connecticut
- [Street Design Manual](#), New York City
- [Complete Streets Design Handbook](#), Philadelphia
- [Better Streets Plan](#), San Francisco

- [Rights-of-Way Improvements Manual](#), Seattle
- [Complete Streets Planning and Design Guidelines](#), North Carolina Department of Transportation
- [Project Development and Design Guide](#), Massachusetts Department of Transportation
- [Complete Intersections: A Guide to Reconstructing Intersections and Interchanges for Bicyclists and Pedestrians](#), California Department of Transportation
- [Complete Streets Manual](#) (draft), Dallas

Measuring Performance

Creating and using new performance measures for transportation projects and the transportation system is essential. It helps agencies ensure if they are on the right track — and helps them celebrate their new way of doing business. Performance data for all modes is not a luxury. Hard figures documenting the performance of Complete Streets implementation can become a powerful selling point for future projects and funding.

The first challenge is **agreeing to a set of performance measures**. Community members, leaders, and staff have varying needs and demands from the transportation system, such as mode shift, decreases in chronic disease, better air quality, retail vacancy rates, and roadway safety. Further, traditional measures can be difficult to change or adapt to multimodal needs. These challenges have meant that very few communities have tackled the creation of new performance measures in any systematic way.

Yet, there are relatively easy ways to demonstrate Complete Streets success. Communities can **measure progress by simply counting the facilities** they are building, such as blocks of new or repaired sidewalks; number of bus stops with shelters; miles of new bicycle facilities; and installation of pedestrian countdown signals. Communities can also account for maintenance activities such as repairs to curb ramps and repainted bicycle lanes or crosswalks. Tracking such facilities demonstrates that the community is making on-the-ground changes each year. If packaged and made publicly available at the close of each year, these numbers can add to a community's efforts in improving education and awareness of Complete Streets.

A growing number of communities are **counting the number of people walking and bicycling**. Such counts have not traditionally been taken in most communities on a regular basis, though new tools and techniques have made this a more common activity today. Monitoring non-motorized data allows jurisdictions to monitor trends across the network and along key corridors. Another simple step toward performance measurement is at the project level, where data collection can show the **direct and immediate benefits of a transportation investment**. Such information can be especially powerful with road conversions, which typically show an immediate reduction in speeding, a dramatic reduction in crashes and crash severity, and, sometimes, an increase in non-motorized use or even user satisfaction.

Once a community has established transportation-oriented performance measures, transportation staff can **work with other agencies and departments** to link them to larger goals such as long-term changes to public health, economic growth, and the physical environment. Such measures require collaboration with and leadership from other departments, sectors, and often universities.

Possible Activities

- Track multi-modal projects by:
 - Counting facilities or miles of facilities such as sidewalks, bike lanes, and street trees,
 - Counting intersections improved by signal timing, medians, count down timers, bulb outs, and other improvements,
 - Tracking dollar amounts or percentage of funds used for each mode, and
 - On-road transit performance such as the percentage of buses running on time and average speed
- Track (or work with another agency to track) broader community performance measures

such as:

- Air quality improvement as measured by ground-level ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide,
- Health indicators such as incidence of chronic disease or rates of physical activity,
- Housing + transportation affordability,
- Response time of emergency responders,
- Transit operating costs and farebox recovery ratio,
- Economic impact, such as the decreases in vacancies, changes in revenue, and the number of new jobs created in proximity of multimodal streets and near transit.
- Adopt or revise transportation performance measures. New performance measures may include:
 - Deaths and injuries by mode,
 - Crashes by mode and type, including 'doorings' and pedestrians accessing transit,
 - Mode shift, such as bike, walk and transit trips over time,
 - Percentage of children walking and bicycling to school,
 - Corridor impact analysis,
 - Travel times and delays for all modes,
 - Automobile Trips Generated (ATG),
 - Vehicle Miles Traveled (VMT) or Single Occupancy Vehicle (SOV) trip reduction, and/or
 - Multimodal Level of Service, Pedestrian Level of Service, or Bicycle Level of Service.
- Provide regular reports to the public on the data being tracked or the agency progress on Complete Streets performance measures.
- Changed philosophy and attitude to implement Complete Streets and stop primarily building and maintaining 'incomplete' streets.

Best Practices

- Transportation departments should not be the only ones to track performance. They can collaborate with others to collect and analyze data, including the health department and public health organizations; law enforcement agencies and emergency responders; and advocacy groups, including those focused on equity.
- Use rates, rather than straight numbers, to show changes in safety and mode shift over time.
- Establish baseline data so as to better illustrate successes.
- Be clear about measuring outputs (such as blocks of sidewalks built or repaired) versus outcomes (such as increases in walking rates).
- Create metrics that are specific to community goals.

Resources

Counts

- [National Bicycle and Pedestrian Documentation Project](#)
- [Standard Manual Bicycle and Pedestrian Screenline Count Form](#), Minnesota Department of Transportation
- [2012 Bike Walk Twin Cities Pedestrian and Bicycle Count Report](#), Minneapolis and its surrounding communities
- [Pedestrian Counts](#), Seattle
- [Bicycle and Pedestrian Counts](#), Minneapolis

Health Impact Assessments and Environmental Audits

- [Community Transportation Plan Health Impact Assessment](#), Decatur, Georgia

- [Pedestrian Environmental Quality Index](#), San Francisco
- [Bicycle Environmental Quality Index](#), San Francisco
- [Vehicle-Pedestrian Injury Collision Model](#), San Francisco
- [Bicycling Environmental Audit Tool](#), Philadelphia
- [Walkability Assessment Tool](#), Philadelphia
- [Planning & Health Indicator List & Assessment Tool](#), Philadelphia
- [Bottineau Transitway Health Impact Assessment](#), Hennepin County, Minnesota

Performance Goals

- [Pedestrian Master Plan Performance Measures and Targets](#), Seattle
- [Sustainable Communities Index Transportation Objectives and Indicators](#), San Francisco
- [Active Transportation Monitoring Plan](#), Capital Area Metropolitan Planning Organization (Austin, Texas region)
- [2012 Long Range Transportation Plan Report Card](#), Champaign Urbana Urbanized Area Transportation Study, Illinois
- [Boston Indicators Project](#)

Adopted Performance Goals

- [Transportation Performance Measures and CEQA Thresholds](#), Pasadena, CA (2014)

Citizen Surveys and Travel Diaries

- [Citizen Attitude Surveys](#), Corvallis, Oregon
- [Employee Surveys](#), Boulder, Colorado
- [Trip Diary Survey](#), Flagstaff, Arizona

Before and After Studies

- [Summary Report: Evaluation of Lane Reduction "Road Diet" Measures and Their Effects on Crashes and Injuries](#), Federal Highway Administration
- [Nickerson Street Rechannalization: Before and After Report](#), Seattle
- [Valencia Street Road Diet — Creating Space for Cyclists](#), Pedestrian and Bicycle Information Center
- [25th Avenue Road Diet Project: A One Year Evaluation](#), San Francisco
- [Edgewater Drive Before & After Re-Striping Results](#), Orlando, Florida
- [Making Safer Streets](#), New York City
- [The Economic Benefits of Sustainable Streets](#), New York City

Multimodal Level of Service (MMLOS)

- [MMLOS Toolkit](#), Fehr & Peers
- [Highway Capacity Manual 2010](#), Transportation Resource Board
- [Multimodal Level of Service at Signalized Intersections](#), Charlotte, North Carolina
- [Pedestrian and Bicycle Level of Service at Signalized Intersections](#), Charlotte, North Carolina
- [Transit Service – Level of Service Guidelines, Pedestrian Facilities - Level of Service Guidelines, and Bicycle Facilities - Level of Service Guidelines](#), 2030 Regional Transportation Plan, Flagstaff, Arizona
- [Auto Level of Service Reform](#), San Francisco
- [Expanded Transportation Performance Measures to Supplement Level of Service \(LOS\) for Growth Management and Transportation Impact Analysis](#), Florida Department of Transportation

Annual Reports

- [Measuring the Street: New Metrics for 21st Century Streets](#), New York City
- [Sustainable Streets Index](#), New York City
- [Annual Reports](#), Seattle
- [2013 Benchmarking Report](#), Billings, Montana
- [2012 Transportation Report on Progress](#), Boulder, Colorado
- [2011 Mobility Report Card](#), Redmond, Washington
- [2012-13 Annual Report](#), Connecticut Bicycle and Pedestrian Advisory Board
- [Annual Report 2012](#), Michigan Complete Streets Advisory Council
- [Implementation Reports](#), Lee County, Florida
- [2012 State of Cycling Report](#), San Francisco

Trip Generation

- [Trip Generation Tool for Mixed-Use Developments](#), U.S. EPA and Institute of Transportation Engineers, 2011
- [Auto Trip Generation Study](#), San Francisco County Transportation Authority, 2008
- [Getting Trip Generation Right: Eliminating the Bias Against Mixed Use Development](#), Jerry Walters, Brian Bochner, and Reid Ewing, American Planning Association PAS Memo, May 2013

Resources

- [Decisions, Values, and Data: Understanding Bias in Transportation Performance Measures](#), Eric Dumbaugh, Ph.D., AICP, Jeffrey Tumlin, and Wesley E. Marshall, Ph.D., PE, *ITE Journal*, August 2014
- [Counting Bicyclists and Pedestrians to Inform Transportation Planning](#), Active Living Research, a National Program of the Robert Wood Johnson Foundation, February 2013
- [Performance Measures for Complete, Green Streets: A Proposal for Urban Arterials in California](#), University of California Transportation Center
- [Traffic Monitoring for Non-Motorized Traffic](#), Federal Highway Administration
- [Performance Measures, Urban Streets Design Guide](#), National Association of City Transportation Officials
- [Measuring Active Transportation: Recommendations for Colorado](#), Kaiser Permanente Colorado
- [Driven Apart: How Sprawl is Lengthening Our Commutes and Why Misleading Mobility Measures are Making Things Worse](#), Joe Cortright, CEOs for Cities
- [Toward More Comprehensive and Multi-modal Transport Evaluation](#), Todd Litman, Victoria Transport Policy Institute
- [Evaluating Complete Streets: The Value of Designing Roads For Diverse Modes, Users and Activities](#), Victoria Transport Policy Institute
- [Greenroads Rating System](#), Greenroads Foundation

