The transportation component of GroveCity2050 builds upon the principles and land use recommendations to define a vision for the future transportation network. It establishes a hierarchy of streets and street design criteria to support the land use vision and provides strategies to continue expanding the City’s road network, bikeway system, transit service, pedestrian infrastructure and other mobility needs over the next 30 plus years.

**GOAL**

*Smart and safe transportation choices that offer reduced congestion, support and encourage desirable growth and character of place, and integrate private vehicles, public transportation, biking and walking.*

**OBJECTIVES**

1. Design corridors to balance different users and modes of travel
2. Reduce congestion on major roadways without sacrificing character or walkability
3. Consider aesthetics and character of place in the design of all new roadways and redevelopment of existing roadways
4. Ensure that new developments are connected into the existing transportation network
5. Expand public transportation options
6. Expand the sidewalk and bikeway networks to provide connectivity within Grove City and the region
STREET DESIGN CONCEPTS GUIDING THIS PLAN

Context Sensitive Solutions (CSS) and Complete Streets are two names for similar contemporary concepts in transportation planning that guide the transportation element of GroveCity2050. Where prior versions of Grove City’s thoroughfare plan have employed a conventional approach to street classification and design, this update introduces the idea of CSS and Complete Streets to ensure that new streets and improvements to existing streets are more responsive to their context, current and future users and desired development.

CONTEXT SENSITIVE SOLUTIONS
Context Sensitive Solutions (CSS) is a collaborative, interdisciplinary design approach that considers the total context within which a transportation improvement project will exist. Context Sensitive Solutions:

- Are in harmony with the community and preserve the environmental, scenic, aesthetic, historic and natural resource values of the area
- Are safe for all users
- Solve problems that are agreed upon by a full range of stakeholders
- Meet or exceed the expectations of both designers and stakeholders, thereby adding lasting value to the community
- Demonstrate effective and efficient use of resources (people, time, budget) among all parties

COMPLETE STREETS
Complete Streets is an initiative by which cities or other jurisdictions adopt policies to ensure that future roadway projects will attempt to accommodate all users who walk, bike, take transit, move goods or drive cars. Complete Streets design is a process, not a specific product. For that reason, not all “Complete Streets” will look the same. Complete Streets may make it easy to cross the street, walk to shops, bicycle to work and make transit more accessible and reliable. A Complete Street may include: sidewalks, bike lanes (or wide paved shoulders), bus lanes, comfortable and accessible public transportation stops, frequent and safe crossing opportunities, median islands, accessible pedestrian signals, curb extensions, narrower travel lanes, roundabouts and more. The design of a “Complete Street” depends on context. For example, a Complete Street in a rural area may not include sidewalks and curbs, but could feature a multi-use path on one side of the street to provide a meaningful transportation option in that setting.

Complete Streets and CSS work together to ensure that street design considers the needs of various users and the surrounding context. Good design standards must balance engineering judgment and user needs within the context of the street. Street design must also rely on a design professional’s knowledge of elements such as travel speeds, volumes, horizontal and vertical alignments and sight lines, and how those elements impact various users and the surrounding character.

HELPFUL RESOURCES
The following recent publications provide guidance to communities in implementing Complete Streets and Context Sensitive Solutions.

- Complete Streets Toolkit - 2011
  Mid-Ohio Regional Planning Commission (MORPC)
- Urban Street Design Guide - 2013
  National Association of City Transportation Officials (NACTO)
- Designing Walkable Urban Thoroughfares: A Context Sensitive Approach - 2010
  Institute of Transportation Engineers (ITE)
KEY FINDINGS AND OPPORTUNITIES

Transportation in Grove City covers a variety of aspects.

A discussion of transportation in Grove City must consider many facets. More than just the traditional examination of roadway traffic counts and ensuring that roadways are designed to accommodate them, GroveCity2050 addresses the many transportation options available in the City for residents, workers and visitors making sure they reflect the desired character of Grove City. The intent of future transportation planning in Grove City is a balance of function and character.

Exiting Motorized Transportation

- Automobiles on roadways to and from work or other destinations
- Trucks and other vehicles transporting goods via the road network
- Trains transporting goods via rail lines

Existing Non-motorized Transportation

- Bicyclists on trails or on-street accommodation
- Pedestrians utilizing sidewalks

Within Grove City’s current boundary (2017):
- 200 miles of road (approximately 23 miles of these are private roadways)
- 49 miles of bikeways (on-street and off-street)
- 5.5 miles of bus lines (service provided by Central Ohio Transit Authority - COTA)
- 2 miles of rail (service provided by Genesee & Wyoming Inc. with lines owned by CSX)

Within the GroveCity2050 Planning Area:
- 260 miles of road (roadways outside of Grove City’s boundaries are maintained by other entities including Jackson Township, Franklin County and ODOT)
- 6 miles of rail (service provided by Genesee & Wyoming Inc. with lines owned by CSX)
- No additional formal bikeways or bus service is provided outside Grove City’s jurisdiction within the planning area.
Many regional efforts relate to transportation planning.

A number of regional transportation plans exist which Grove City’s network will include for individual vehicular travel, public transit and non-motorized transportation.

**VEHICULAR TRAVEL**

The Mid-Ohio Regional Planning Commission (MORPC) published the 2016-2040 Columbus Area Metropolitan Transportation Plan (MTP), which makes the region eligible to receive federal transportation funding to improve, maintain and operate highways, public transit, bikeways, sidewalks and related facilities. It sets goals and targets for the region and identifies strategies and projects to achieve those goals over the next 20 years.

- The 2016-2040 MTP identifies modifications to the I-71 interchanges at both I-270 and Stringtown Road. Additionally, Broadway and Stringtown Road are identified for further study as high capacity transit corridors.

**PUBLIC TRANSPORTATION**

The Central Ohio Transit Authority (COTA) recently completed a long-range planning effort called NextGen to identify public transportation needs and opportunities through the year 2050. NextGen comprehensively considers how the region’s trends will shape opportunities and demand for public transportation. As a result of these planning efforts, COTA recently reconfigured many of their routes to offer more frequent and faster transit service. The plan’s Vision 2050 also includes 13 potential high capacity transit corridors centered around some of Columbus’ most dense corridors.

- None of the potential high capacity corridors identified by the NextGen vision include Grove City. If conditions such as population and employment density become more favorable in the future, expanded transit service to Grove City is a possibility.

**NON-MOTORIZED TRAVEL**

The 2016-2040 Columbus Area Metropolitan Transportation Plan also included the Columbus Area Active Transportation Plan to help identify regionally significant active transportation projects that include pedestrian, bicycle and transit accommodation. The draft plan was completed in October 2015 and included tools such as an interactive map and cost estimator for construction costs for active transportation facilities. The interactive map identifies major transportation corridors with recommendations for appropriate transportation facilities for each type.

Preferences are changing.

While the majority of trips in Grove City are expected to continue to be by private vehicle, preferences are changing in terms of transportation. The demand for more walkable developments means that a street network must consider the safety of the pedestrian along the road, and the drive toward being more sustainable means more people will choose public transit or nonmotorized options. Planning for the future transportation network needs to safely accommodate these preferences and various methods of travel.
A balance between character and function is desired for future transportation planning. Whether existing roadways will require future improvements should be evaluated in light of overall community objectives, rather than level of service alone. Efficient and unimpeded conveyance of traffic should not always be the top priority. Prioritizing one type of traffic often hinders others. For example, in the Town Center, slower moving traffic would be a positive condition that improves the pedestrian environment and supports the viability of commercial development in the district. Also, traffic conditions tend to influence behavior. Slower traffic may encourage people to seek alternate routes, change the timing of their trip or consider other modes such as biking, transit or ridesharing. There is not a singular answer, rather traffic priorities should be aimed at aligning with the contextual character and priorities of the area.

A number of challenges exist when planning for connectivity within the City and to the region.

Grove City is located in a segmented traffic environment, with a number of barriers that hinder connectivity in the transportation network. While features such as Interstate 71 bisecting the community is an asset for transporting goods, it limits the number of connections across the community to overpasses or underpasses. Currently, there are only five connections over or under I-71 to connect the east and west sides of the planning area. Additionally, while the Scioto River is a great asset for the community, particularly with the new Scioto Grove Metro Park, it acts as a barrier to connect to US 23 to the east. Limited connections leads to congestion and over-burdening of the existing connections.

A number of uses exist outside of Grove City’s boundaries to the north which impact regional connectivity, including the active quarry along the Scioto River, the Franklin County Corrections Center and the City of Columbus’ Waste Water Treatment Plant on Jackson Pike. A recreational trail was recently installed by the City of Columbus south to State Route 104 / Frank Road; however, it will be difficult for Grove City to connect to the trail given the uses between the trail’s terminus and Grove City’s boundaries.

Safety is a key consideration in transportation planning.

The transportation network must be designed to safely accommodate all modes of travel. More heavily traveled corridors will inherently have more crashes due to the higher volume of cars; however, examining the context of crashes helps identify potential improvements. The image to the right shows high-crash areas, with areas in red indicating more crashes. As the map shows, Stringtown Road around the I-71 interchange and Broadway around the I-270 interchange experience the most vehicular crashes. In fact, these areas were marked as two of the top 100 crash locations in Central Ohio by MORPC. They both experience heavy traffic and have multiple curb cuts in close proximity with little to no access management (shared entrances and access drives).
Grove City has several heavily travelled corridors, yet traffic volumes are not as high as in other suburbs.

Traffic volumes are measured in terms of average vehicles per day or Average Daily Traffic (ADT). ADT may vary considerably based on roadway context and design. High ADT corridors are often attractive for retail development while less attractive for residential development. Corridors with certain levels of traffic may employ different designs (number of lanes, lane width, intersection type, etc.) depending on context.

The roadways in Grove City that currently experience the highest traffic volumes (over 15,000 vehicles per day) include:

- US 62/Broadway (between Columbus Street and I-270)
- Hoover Road (between White Road and Orders Road)
- Stringtown Road (between McDowell Road and Buckeye Parkway)
- SR 665 (between I-71 and Hoover Road)

The Stringtown Road corridor between McDowell Road, the interchange at I-71 and Buckeye Parkway carries more than 20,000 vehicles per day and is heavily congested during peak periods. While these are the busiest roadways in Grove City, ADT is lower than the busiest roadways in communities such as Dublin and Westerville, which have ADTs between 30,000-40,000 vehicles.

An active freight rail line connects Grove City and Columbus.

A railroad corridor traverses Grove City parallel to and west of US 62 and runs through the Town Center. The existence of an active freight rail line that connects Grove City with Columbus and the larger region could present a future opportunity should regional rail efforts resume.

In order for passenger rail transportation to be potentially viable in Grove City, there would need to be a significant population and employment density within a walkable distance to the rail line. The continued development in the Town Center and future redevelopment of Beulah Park would facilitate such an opportunity.

Stringtown Road Planning

Stringtown Road is a critical and heavily traveled arterial in Grove City. Traffic and congestion on Stringtown Road was indicated as a negative by many residents at public workshops and throughout the public input campaign for GroveCity2050.

Improvements to Stringtown Road east of Interstate 71 were recently completed to improve traffic flow. These improvements included adding two lanes exclusively for the I-71 northbound entrance ramp and adding an additional left-turn lane from Buckeye Parkway on to westbound Stringtown Road. Stringtown Road east of Parkway Center was also widened to three (3) lanes to accommodate future development around the new OhioHealth hospital.

A number of other recent studies and construction projects have been completed to improve traffic on Stringtown Road including: improvements between Hoover Road and McDowell Road with a signal system timing upgrade, both completed in 2011, as well as signal modifications in 2010 at the Thistlewood Drive intersection. Stringtown Road was also widened between McDowell Road and Marlane Drive in 2005.

A focus area study of Stringtown Road was prepared and is included in Appendix C. The Stringtown Road interchange at I-71 is currently being studied by ODOT for capacity improvements including improvements beyond the boundaries of the interchange.
Grove City is served by regional bus transit and ridership has been strong.

The Central Ohio Transit Authority (COTA) currently operates two bus routes directly serving Grove City, one express route and one local route. The local route (Local #3) serving Broadway and Stringtown Road uses on-street bus stops, with one Park and Ride at the corner of Stringtown Road at Parkmead Drive. Buses arrive at these stops approximately every 30 minutes from 5 a.m. until midnight, seven days a week. Due to strong ridership, the service was recently expanded from a 45-minute to a 30-minute service.

The express route runs between Downtown Columbus, Southpark Industrial Park and Parkmead Park and Ride (Express 61). An express route between Downtown Columbus and SR 665 at the FedEx Ground Facility was discontinued in 2017. In 2014, COTA acquired property at the I-71/SR 665 interchange, west of North Meadows Drive, for a future park and ride, and service is expected to increase in the coming years as the number of trips to each lot expand.

FIRST MILE, LAST MILE PARTNERSHIPS

To extend its reach, COTA promotes partnerships to solve so-called “first mile, last mile” needs, connecting express routes with various local destinations. New Albany and Groveport have recently initiated city-run shuttle services off of the COTA express lines to achieve the “first mile, last mile” goal – serving large office parks (New Albany) and Rickenbacker Inland Port (Groveport). Both of these communities are planning to expand these shuttle services. Grove City is currently reviewing the feasibility of offering similar shuttle services in select locations in the City.

MAKINGS OF A SUCCESSFUL BUS TRANSIT ROUTE

COTA lines look for dense, linear development and walkable environments. Consistent development is also needed, as gaps in the City significantly lower ridership. Mixed use development that extends along a corridor provides the most consistent pattern to support bus transit.
The City has an extensive and growing bikeway network connecting to the regional greenway system.

Many of the City’s parks and schools are connected to the existing bikeway network, and there are plans to provide additional connectivity between the remaining schools, parks and future bicycle networks. Several roadway improvement projects, currently in design or under construction, include new or improved bicycle facilities.

The City published a bicycle facility master planning document within the 2016 Parks, Recreation and Open Space Comprehensive Plan (Trails and Connectivity Chapter) which provides a detailed assessment of current bicycle facilities, as well as recommendations for future trails, bike paths and on-street bikeways to provide greater connectivity throughout Grove City. While the GroveCity2050 Community Plan discusses recommended improvements to the bikeway system, the official Bikeway Planning Map is housed in the Parks, Recreation and Open Space Comprehensive Plan.

The Parks Comprehensive Plan defines various bicycle facilities, which can be divided into two major types, multi-use paths (off-street facilities) and shared roadways (on-street facilities). Descriptions of each can be found below.

<table>
<thead>
<tr>
<th>MULTI-USE PATHS</th>
<th>SHARED ROADWAYS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recreational Trail</strong>: A bikeway within its own right of way, separate from the road network. These paths may be used by walkers, runners, skaters, and wheelchair users in addition to bicyclists.</td>
<td><strong>Bike Lane</strong>: Bike lanes are sections of a roadway for exclusive use by bicyclists. Space for a new bike lane may come from restriping the other lanes or removing parking.</td>
</tr>
<tr>
<td><strong>Sidewalk</strong>: A sidewalk is a bikeway constructed on the side of the roadway within the street right-of-way, usually on only one side of the road.</td>
<td><strong>Signed, Shared Roadway (Bicycle Route, signed only)</strong>: Bicycle routes are a system of on-street bikeways designated with route markers in which the bicyclists share the roadway with motor vehicles.</td>
</tr>
<tr>
<td><strong>Cycle track</strong> (or protected bike lane): A cycle track is an exclusive bike facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane. A bicycle track is physically separated from motor traffic by some form of barrier and distinct from the sidewalk. Bicycle tracks can be one-way or two-way, at street level or sidewalk level.</td>
<td><strong>Bicycle Boulevard</strong>: Bicycle boulevards are low-volume roadways designed to give priority to bicyclists and pedestrians.</td>
</tr>
</tbody>
</table>

**Pedestrian Overpass**

Two of Grove City’s high schools (Grove City High and Grove City Christian) are located in the near geographic center of the City; however, I-71 prevents many of the residents closest to the schools from walking or riding their bikes to school. A bridge from the Pinnacle Club subdivision over Interstate 71 would create a safe connection for many students previously unable to bike to school or to other area amenities and community facilities such as Fryer Park and the YMCA.
Bicycle Users and Their Differences

Bicycle ridership varies not only in the type of transportation (commuting versus recreational), but more importantly in the level of comfort for those riders. The City of Portland, Oregon’s Bicycle Coordinator, Roger Geller, breaks this comfort level down to the four categories listed below.

- **STRONG AND FEARLESS**
  Representing only a small fraction (<1%) of the population, these riders are not deterred by roadway configurations, weather conditions or traffic levels. They do not require protected bike lanes and consider cycling a large part of their identity.

- **ENTHUSED AND CONFIDENT**
  Making up 5-10% of the population, these riders are somewhat comfortable riding on city streets but would prefer protected lanes and appreciate additions of designated lanes. This group is less likely to ride through poor weather conditions and will likely seek alternate transportation options. The enthused and confident riders offer cities the most to gain as only minor adjustments to street configurations or path connections will net an immediate increase in use.

- **INTERESTED BUT CONCERNED**
  The largest demographic is merely intrigued by bicycling and represents roughly 60% of the population. They remember how fun it can be, yet are hesitant to ride; especially on city streets. Much of this group will ride within their neighborhood or drive to designated path trailheads to use their bicycles. Expansions to regional trail networks will have the largest impact on this rider group as substantial changes would be required to city infrastructure for their comfort level to rise.

- **NO WAY, NO HOW**
  Approximately one-third of the population falls into this last category. These individuals are not interested at all in bicycling either because of health factors or indifference to the activity.

“Riding a bicycle should not require bravery. Yet, all too often, that is the perception among cyclists and non-cyclists alike.”

Roger Geller, Portland Bicycle Coordinator

A Number One Priority in Grove City

Improving the trail network and trail accessibility was the number one comment from the public during the Parks and Recreation Comprehensive Plan input process in 2010-2011. Many comments were also received online and at public workshops for GroveCity2050 related to the trail network.

“I would like to see Grove City connected to the big bike trail from downtown Columbus to campus and on to Worthington.”

Participant, Parks and Recreation Comprehensive Plan process, 2010

“As we try to get more people to exercise more, live [a] healthier lifestyle and be more green environmentally, it’s important that we have a strong trail system.”

Participant, Parks and Recreation Comprehensive Plan process, 2010

“I feel more people are active, so bike trails, walking paths, etc. would fit nicely in Grove City”

Participant, GroveCity2050 Public Workshop, 2016
Improvements to existing streets and new street connections are anticipated.

Recent planning studies conducted by the City and MORPC indicate that increases in traffic volumes are expected on several roadways in and around Grove City that may exceed the existing capacity of those roads at peak times. As previously discussed, the goal of future transportation planning will consider the context of the roadway when designing new roadways or making improvements to existing roadways.

**HOME ROAD**

Home Road between Hoover Road and Gantz Road experiences significant traffic but is narrow with open ditches along portions of the roadway. Home Road west of Broadway is an awkward intersection difficult for large vehicles to maneuver and experiences considerable traffic back-ups.

> Improvements to Home Road should focus on improving safety. Because multiple residential developments are accessed off portions of Home Road east of Hoover Road, an intermittent center turn lane for points of access is recommended for improved safety. Additional studies will be needed to determine the most appropriate action for Home Road west of Broadway to improve the safety of the intersection and improve traffic movement in the area.

**DEMOREST ROAD**

Demorest Road will provide multiple points of access to the redeveloped Beulah Park site and as such is expected to carry additional traffic. The current road is narrow and in disrepair.

> Improvements to Demorest should include enclosing the open ditches and adding a center turn lane to make the area more conducive for future growth.

**SEEDS ROAD**

Seeds Road north of Zuber is expected to accommodate future non-residential development. West of Enterprise Parkway, it is only a two lane rural road with open ditches.

> To be more conducive to industrial development, the road should be widened with a center turn lane.

**BORROR ROAD**

Borrow Road is proposed to be widened to improve the safety of the roadway. Borrow provides an important connection to SR 104 and a number of new residential developments are expected to utilize this road.

> Because of the rural character of the area, improvements should be limited to widening the roadway; however adding a center turn lane, curbs and other traditional roadway improvements may not be necessary.

**LONDON GROVEPORT ROAD (SR 665)**

London Groveport Road (SR 665) east of Hoover Road has been identified in the 2016-2040 Metropolitan Transportation Plan (MTP) as a road segment to be improved. This roadway links I-71 with Rickenbacker International Airport and Inland Port and is suggested to be widened from two lanes to four lanes in the MTP.

> As the existing and future land use context in the area is residential, a significant increase in truck traffic is not desirable. It will be very important for Grove City to contribute to the design of improvements to SR 665 to ensure that it is appropriate to the surrounding context.

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In June 2016, the City of Columbus won the U.S. Department of Transportation (USDOT) $40 million Smart City Challenge after competing against 77 cities nationwide. The Smart City Challenge is a grant competition designed to help the winner become the first city to fully integrate new transportation technologies — everything from street sensors to self-driving cars — and become a model for other municipalities. Associated with the Smart City Initiative, Columbus was also awarded a $10 million grant from the Paul G. Allen Family Foundation to reduce greenhouse gas emissions through the de-carbonization of the electric supply and transportation sectors. Additionally, private businesses have pledged nearly $200 million in funding and technology.

**THE VISION OF SMART COLUMBUS IS TO:**

> Improve access to jobs through expanded mobility options in major job centers
> Compete globally through smart logistics
> Connect Columbus residents to safe, reliable transportation that can be accessed by all
> Better connect visitors to transportation options
> Develop a more environmentally-sustainable transportation system

The anticipated outcome of the multi-year initiative is for Columbus to become the nation’s epicenter for intelligent transportation systems research to improve safety, enhance mobility, create ladders of opportunity for those who may have been left behind in the past and address climate change by reducing greenhouse gas emissions.

Grove City can leverage the success of Smart Columbus to work towards innovative transportation solutions to address planning for the City’s future infrastructure needs.
Many planned roadway improvements will include bikeway facilities and additional off-street trails are planned as the City grows. The first leg of a major trail connection between Hoover Road and the Scioto Grove Metro Park is identified in the 2018-2021 Transportation Improvement Program. A number of other off-street bikeways are proposed throughout the community and safe routes are being examined to create on-street facilities where there is not room to install off-street bikeways. Most new roadways should accommodate cyclists. More detail on the recommended accommodation can be found in the Street Classification map and roadway character type description on the following pages.

**TRANSPORTATION IMPROVEMENTS**

Focused Growth

The Transportation Improvements Map shows less than 18 miles of new roadway to support the anticipated residential and economic growth in the next 30+ years. This supports the principle of focused growth and placing the priority on infill development and redevelopment over the extension of infrastructure for new development.
**Holton Road Overpass**

**Intent**

The Future Land Use and Future Street Network Maps show a number of proposed future roadways, including a new overpass over I-71 at Holton Road. This overpass would allow for a new frontage road to be developed on the west side of I-71, similar to North Meadows Drive on the east side of I-71, and open up land for development previously inaccessible. Frontage roads provide the visibility sought by office developments and other industries Grove City would like to attract, as noted in the Land Use and Economic Development chapters. Providing an additional point of connectivity across I-71 will also decrease the traffic on existing connections.

**Challenges**

A new overpass presents a number of challenges. In addition to traditional challenges faced by any new overpass project (proper grading and design), the proposed Holton Road overpass has unique challenges in that it is going into an area already partially developed with both residential and non-residential developments.
STREET CLASSIFICATION

To integrate transportation and land use based on a Complete Streets philosophy, this plan puts forth a new street classification system that combines both function and design context. The intent is to create a roadway hierarchy/classification to inform local policies, codes and programs. These street types, future street network map and other street design considerations described on the following pages, should be used to evaluate potential designs for new streets and improvements to existing streets.

- Freeway (Interstate)
- Parkway
- Boulevard
- Avenue
- Main Street
- Neighborhood Connector
- Street
- Rural Road

HOW STREETS ARE DEFINED TODAY

Functional Classification: The functional classification system is used by FHWA, ODOT and MORPC to express the hierarchy of roadways at the national, regional and local scale. Sometimes this form of classification is referenced in local codes and policies. Grove City’s code currently employs the following functional classification system:

- Freeway/Expressway
- Principal Arterial
- Minor Arterial (Secondary Street)
- Collector
- Local

While useful for many things, this conventional typology falls short of offering integration between transportation and other community initiatives. However, functional classifications will always be necessary for a variety of reasons (federal programs, state and regional planning and coordination), and therefore, the street types defined in this plan reference traditional functional classifications.

FREEWAY

Controlled access (full or partial), multi-lane roadway for higher speeds and longer distance travel. More regional than local.

Functional Classification: Freeway/Interstate

Local Example: I-71 and I-270

Typical Section: 4+ travel lanes

PARKWAY

Multi-lane, high-capacity thoroughfare that connects to major regional roads. Sometimes includes a landscaped center median. Bicycle and pedestrian facilities generally are provided, but separated from the motor vehicle travelway due to higher traffic volumes and speed. Should accommodate transit. Access management is a priority to reduce curb cuts.

Functional Classification: Principal Arterial

Example: Stringtown Road

Typical Section: 4+ travel lanes

BOULEVARD

Multi-lane thoroughfare that provides connectivity to local roadway network. May include a landscaped center median. Bicycle and pedestrian facilities generally are provided but may be separated from the travelway in some contexts. Accommodates transit. Access management is a priority to reduce curb cuts.

Functional Classification: Principal Arterial/Minor Arterial

Example: Buckeye Parkway

Typical Section: 3-4 travel lanes
Two- to four-lane thoroughfares that balance mobility with access to local development at the neighborhood level. May function as an arterial or collector, but generally at low to moderate speeds. Characterized by wide sidewalks (scaled to the surrounding land uses) and off-street bicycle facilities. May have on-street parking and transit stops in some contexts.

Functional Classification: Minor Arterial/Collector
Examples: Hoover Road, Grove City Road, Columbus Street
Typical Section: 2-4 travel lanes

A subset of the avenue type that represents a corridor that transitions from an arterial thoroughfare (US Highway 62) to the Town Center. On the main street, low traffic speeds, bicycle and pedestrian comfort are paramount, as the priority should be on pedestrian comfort over the conveyance of vehicular traffic. Pedestrian amenities including wide sidewalks, seating and lighting are common.

Functional Classification: Arterial
Examples: Broadway in Town Center
Typical Section: 2-4 travel lanes

A subset of the avenue type that connects neighborhoods and tends to carry less vehicular traffic than other types of avenues. Connects to avenues and boulevards.

Functional Classification: Collector
Example: Parlin Drive, Kingston Avenue
Typical Section: 2-3 travel lanes

Local, slow-movement street. Can be urban (with alleys) or suburban including many streets in subdivided neighborhoods. Includes both public and private streets. On-street parking.

Functional Classification: Local
Example: Neighborhood streets
Typical Section: 2 travel lanes

A road outside of the City serving a range of traffic levels in a country setting. May function as an arterial, collector or local route, but with a range of speeds. These roads are expected to retain rural character over the horizon of this plan. Curb and gutters vary/optional.

Functional Classification: Any
Example: Borror Road
Typical Section: 2-3 travel lanes
Future Street Network

- Freeway
- Parkway
- Boulevard
- Boulevard (proposed)
- Avenue
- Avenue (proposed)
- Main Street
- Neighborhood Connector
- Neighborhood Connector (proposed)
- Rural Road
- Street
- Study Area
STREET DESIGN IN CONTEXT

Streets should serve a diversity of users and support the desired character in which they exist. While vehicular movement is a component of mobility, it should not be the only consideration when street improvements are proposed. Different kinds of places require a different set of design priorities to create “place” as well as to achieve desired mobility objectives (travel speeds, walkability and transit readiness). The degree of priority for each of these considerations changes depending on where you are in the community.

The future Land Use and Character Map (page 23) organizes intended land use and character into 16 types. These forms can be considered in a consolidated way, through five general context types: mixed-use, commercial (retail and office), industrial, residential and rural. The following pages provide guidance on design priorities of the travel zone, pedestrian zone and other design characteristics such as bicycle accommodation, based upon a street’s context.

TRAVEL ZONE (Curb to Curb)
The travel zone includes the portion of the street that accommodates vehicular activities. These include driving and parking for motor vehicles, as well as bike facilities and green infrastructure in medians.

Typical travel zones might include a parking area, a primary automobile travelway and a median, encompassing everything from one curb to the other. Travel zones should:

- Provide considerations for multiple modes
- Ensure safety for all users
- Be designed for lower speeds on streets that have pedestrian and bicycle facilities

PEDESTRIAN ZONE (Curb to Building)
The pedestrian zone involves the portion of the street that accommodates non-vehicular activities. These include walking as well as business and social gathering. Pedestrian zones encompass everything from the face of the building to the curb and typically include a frontage area, a primary pedestrian walkway and a roadway buffer (area between the curb and primary pedestrian walkway). Pedestrian zones should:

- Maximize safety
- Provide a comfortable and cohesive walking environment
- Promote active and inviting building frontages
- Buffer parking areas
- Provide for universal access and continuity

Conventional street design criteria primarily based on:

- vehicle level of service
- vehicle design speed
- vehicle travel demand
- functional classification

CSS/Complete Street design criteria based on:

- context/land use
- community objectives
- multiple travel modes and user demand
- functional classification

DESIGN FLEXIBILITY
The following two pages contain design concepts recently compiled by the Federal Highway Administration in support of Context Sensitive Solutions (CSS). These ideas support the design recommendations that follow.
Street Design Flexibility

The following represents design ideas recently compiled by the Federal Highway Administration in support of Context Sensitive Solutions (CSS). Many of these ideas are contained in the 2011 AASHTO Green Book, a standard engineering guide for highway and street design. These principles underlie the design priorities shown on pages 55-59.

LANE WIDTH

Lane width is an important design criteria. Narrower lanes can improve comfort and safety for vulnerable users. Narrowing lanes can create space for a separated bike lane, a widened sidewalk with buffer and reduced crossing distances or a standard bike lane and widened buffer. Narrower lanes, as an element of an integrated urban street design, can contribute to lower vehicle operating speeds and make streets easier for pedestrians to cross.

Lane widths can vary between 9 and 12 feet depending on desired speed, capacity and context of a roadway. While 12-foot lanes have been used historically as motor vehicle travel lanes, the AASHTO Green Book supports 10-foot travel lanes in low speed environments (45 mph or less).

DESIGN SPEED

Lane width and other street geometry factors should be chosen to achieve the desired travel speed appropriate for the street’s context. Roadways designed for lower motor vehicle speeds may not result in longer travel times compared to similar streets with higher motor vehicle speeds. Travel times depend on a wide variety of factors, such as intersection frequency, operational efficiency and driver characteristics. Delay for motorists in suburban and urban areas is often due to congestion at signalized intersections, and usually not travel speeds between intersections. There are several techniques to lower motor vehicle speeds that improve safety for all roadway users while simultaneously reducing congestion.

The pattern of adjacent development can also impact driver behavior and speeds. Where buildings or mature trees are close to the street, drivers tend to move slowly compared to streets with buildings set back further. For example, in Grove City, traveling 35mph on Kingston Avenue, where homes are close to the street, feels excessive. However, excessive speeding has been a problem on some newer residential streets where the speed limit is 25 mph.

“Lane widths of 10 feet are appropriate in urban areas and have a positive impact on a street’s safety without impacting traffic operations.”

NACTO Urban Streets Design Guide 2013
INTERSECTION DESIGN
Intersections are critical points on a street where design requires unique consideration. When considering the multi-modal accommodations at intersections, it is important to consider:

- Clearly defined travel realm
- Clearly defined pedestrian realm
- Appropriate bicycle accommodations
- Sidewalks
- High visibility crosswalks
- Medians / pedestrian refuges
- Curb radii

Intersection geometry should be designed for the vehicle that turns at the intersection most frequently. Medians can be useful to provide pedestrian refuges when crossing multilane roads if the median end extends through the pedestrian crossing area and is sufficiently wide (a minimum of 6 feet wide).

GATEWAYS AND TRANSITIONS
Changes in street design should accompany a change in surrounding context. Historically, functional classifications of streets and highways have led to higher-speed designs that can negatively impact denser, small town main streets. Community character, adjacent land uses and safety for all users should dictate the design criteria, especially on a street that serves as a main street. Where streets transition from a commercial context to a residential one, design elements should encourage slower vehicular speeds.

Intersection geometry has a significant impact on safety for pedestrians, cyclists and motorists. These examples show a typical urban/suburban intersection (left) and a redesigned multi-modal intersection. The redesigned intersection features narrower traffic lanes with separated on-street bike lanes, smaller curb radii, pedestrian refuges, while still accommodating turning movements for large vehicles.

Source: National Association of City Transportation Officials (NACTO) Urban Street Design Guide 2013

“Design for the most vulnerable street user rather than the largest possible vehicle. While designs must account for the challenges that larger vehicles, especially emergency vehicles, may face, these infrequent challenges must not dominate the safety or comfort ... for the majority of daily users.”

NACTO Urban Street Design Guide 2013

The design examples shown above illustrate transition zone treatments, gateway treatments or both. Each example includes a gateway sign (1) narrowing of lanes (2) the removal of the shoulder (3) the introduction of curb, street trees (4) sidewalk buffer and (5) sidewalk. The top example shows a horizontal deflection (6) entering and exiting main street, while the lower example shows a constrained environment where a median (7) is used.

Source: Federal Highway Administration (FHWA) (Transitions to Main Streets)
Street Design Priorities: Mixed Use Context

Locations where a mixture of uses are integrated such as the Town Center or other neighborhood or employment centers, offer the greatest opportunity for a balance between travel modes. Streets in this context should:

- Accommodate higher levels of pedestrian activity
- Reduce motor vehicle speeds
- Provide on-street bike lanes or shared-use paths
- Promote pedestrian-oriented development
- Design streets with on-street parking

### Design Examples

Narrow vehicular lanes, landscaped medians, curb extensions and bike lanes can make streets within mixed use areas (particularly main streets) more inviting to pedestrians, while providing an acceptable level of traffic flow.

### Street Type

<table>
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<tr>
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<th>Parkway</th>
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<th>Main Street</th>
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#### Travel Zone Design

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#### Other Design Characteristics

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Items of “high” importance should be prioritized in the design process.
### Street Design Priorities: Commercial Context

In single-use commercial and office areas, streets should accommodate accessibility for walking, biking and transit, but the primary travel mode is by automobile. In this context street design should:

- Emphasize travel lanes and automobile capacity
- Serve faster moving traffic
- Utilize landscaped buffers between automobiles and pedestrians
- Consolidate access with access management

### Design Examples

Within a commercial context, street design could narrow travel lanes and provide space for landscaped medians and wide landscaped buffers to separate pedestrians and cyclists from motor vehicles. These streets should manage direct access to the corridor to limit vehicle conflict points and improve traffic flow.

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### Street Types

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### Pedestrian Zone Design

| Landscaping / Street Trees |         |           |        |             |                        |              |       |
| Buffer Zone               |          |           |        |             |                        |              |       |
| Street Furniture          |          |           |        |             |                        |              |       |
| Wide sidewalks (>5’)      | transit stops | transit stops |         |             |                        |              |       |
| Standard sidewalks (5’)   |          |           |        |             |                        |              |       |

### Other Design Characteristics

| Medians |         |           |        |             |                        |              |       |
| Bicycle Accommodation     | separate | prefer separate | bike lanes / sharrows | bike lanes / sharrows | on-street | on-street | on-street or separate |
| Access Management         |          |           |        |             |                        |              |       |
| Transit Accommodation     |          |           |        |             |                        |              |       |

### Design Priority

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Items of "high" importance should be prioritized in the design process.
Street Design Priorities: Industrial Context

In districts dedicated to industrial and distribution facilities, where large footprint buildings and large blocks are common, the primary travel mode is by automobile with special consideration for the needs of large vehicles. Given this context, street design should:

- Accommodate large vehicles
- Utilize landscaped buffers between automobiles and pedestrians
- Consolidate access with access management

In areas with large blocks and infrequent curb cuts, a landscaped center median with one or two travel lanes in either direction can be used instead of a center turn lane. These landscaped medians could act as “green infrastructure” if designed as a rain garden.

In locations where large vehicles make occasional turns, mountable truck aprons can be installed to deter passenger vehicles from making higher speed turns, but accommodate the occasional large vehicle without encroachment into pedestrian areas. Mountable truck aprons should be visually distinct from the adjacent travel lane and sidewalk.

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</table>

Items of “high” importance should be prioritized in the design process.
### Street Design Priorities: Residential Context

Residential context includes all single-use residential areas within the City. These areas are characterized by slow streets and on-street parking features as well as a high degree of connectivity. In this context, street design should:

- Prioritize safety for pedestrians and bicyclists
- Utilize medians on higher order facilities
- Encourage on-street parking, bicycle lanes and landscaping
- Discourage commercial truck traffic

Narrower lanes, raised crosswalks, curb extensions and landscaped medians with pedestrian refuges can improve safety on residential streets.

### Design Examples

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<tr>
<th>Street Type</th>
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<th>Boulevard</th>
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<th>Main Street (Not Applicable)</th>
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</table>

Items of “high” importance should be prioritized in the design process.
Street Design Priorities: Rural Context

In rural areas, the intent is to maintain a scenic and natural character. These areas could either be within the city or they may be township areas. Street design in this context should:

- Accommodate traffic at moderate speeds
- Provide bicycle accommodation either through separate sidepaths or on-street within wide shoulders

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<td>Street Furniture</td>
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<td>Wide sidewalks (&gt;5')</td>
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<td>Standard sidewalks (5')</td>
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<td><strong>Other Design Characteristics</strong></td>
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<tr>
<td>Medians</td>
<td>separate</td>
<td>prefer</td>
<td>separate</td>
<td>bike lanes / sharrows</td>
<td>on-street</td>
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<td>Bicycle Accommodation</td>
<td>separate</td>
<td>prefer</td>
<td>separate</td>
<td>on-street</td>
<td>on-street</td>
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<td>Access Management</td>
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<td>Transit Accommodation</td>
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<td><strong>Design Priority</strong></td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
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Items of “high” importance should be prioritized in the design process.
TRANSPORTATION ACTIONS

In addition to the Street Network Map and street design guidance, the following projects, policies and programs support the transportation goal: Smart and safe transportation choices that offer reduced congestion, support and encourage desirable growth and character of place, and integrate private vehicles, public transportation, biking and walking.

Objective T1. Design corridors to balance different users and modes of travel.

T 1.1  Formalize a Complete Streets policy. A Complete Streets policy would formalize the intent to plan, design and maintain streets so they are safe for all users of all ages and abilities. Policies direct transportation planners and engineers to consistently design and construct streets to accommodate all anticipated users, including pedestrians, bicyclists, public transportation users, motorists and freight vehicles. The street design matrices in this chapter indicate design priorities within limited rights-of-way.

T 1.2  Improve “transit-supportive” land use conditions along corridors (particularly in those already served by transit). Ensure that zoning and capital improvement decisions support the viability of future transit. Transit-supportive corridors are dense and walkable with few gaps. Mixed-use development that extends along a corridor and locates buildings relatively close to the street provides the most consistent pattern to support transit.

Objective T2. Reduce congestion on major roadways, while maintaining character without sacrificing walkability.

T 2.1  Create an alternate route for truck traffic to bypass the Town Center. Lobby State and Federal agencies to re-designate the route of US 62 or create a signed alternate “truck-route” that would divert truck traffic around the Town Center. Town Center traffic management should be pedestrian focused.

Transit-Supportive Design

Suburban environments can present unique challenges to the effective provision of public transit, given their low density and minimal pedestrian infrastructure.

Transit-Supportive Design (TSD) guidelines can aim to foster access to convenient and reliable transit in communities by shaping the built environment to support all forms of transportation, from pedestrian to transit to private vehicles. The implementation of TSD standards will help to remove the barriers that actively prevent good transit service. Such standards may address bus stop design, mixed use zoning, public land assembly, density bonuses, corridor design, building setbacks and more.

(Source: PACE Suburban Bus)

Viability of Future Rail Transit

The presence of an active freight rail line running adjacent to Grove City’s Town Center is an opportunity. While passenger rail service has not existed in Columbus region for decades, there continues to be interest in reintroducing passenger rail service in the region. Such service could potentially use existing freight rail lines.

In order for passenger rail transportation to be potentially viable in Grove City in the future, there would need to be a significant population and employment density within a walkable distance to the rail line. The continued development in the Town Center and future redevelopment of Beulah Park, may facilitate such an opportunity.
T 2.2 Manage access points onto parkways and boulevards (arterials and major collectors). Access management should be applied on all boulevards and parkways and on avenues in commercial settings to provide for adequate, safe and properly designed entrances to and exits from developments.

T 2.3 Consider the use of roundabouts. Modern roundabouts have been demonstrated to improve efficiency and safety at critical intersections. While not appropriate in all locations, the City should consider roundabouts when designing potential intersection improvements.

T 2.4 Require traffic impact studies for most development proposals. Development proposals that meet certain criteria should be required to submit a traffic impact study as part of the review process. The study would detail projected traffic and impacts on the surrounding street network and identify potential street or intersection improvements needed. Traffic impact studies are used as tools by many central Ohio municipalities to negotiate shared responsibility for transportation improvements.

T 2.5 Evaluate traffic conditions on Stringtown Road once planned intersection and access management improvements are implemented. The City and ODOT are currently implementing or working to implement a number of improvements to Stringtown Road including new dedicated turn lanes for northbound I-71 from westbound Stringtown and an additional turn lane to Stringtown from Buckeye Parkway. Once those planned improvements are implemented, traffic conditions on Stringtown Road should continually be evaluated to ensure that the roadway functions meet demand while maintaining a safe and desirable environment.

T 2.6 Develop partnerships to leverage the work of the City of Columbus’ Smart City Grant. The Smart City Grant (from the US Department of Transportation), has made Columbus an epicenter for testing “intelligent” transportation systems. Grove City should be active in following the Smart City initiative and look for ways to bring new transportation and traffic management technologies to Grove City.

**Roundabout benefits**

Roundabouts are increasingly being used throughout Central Ohio as a modern traffic-management tool. They offer multiple benefits to a community, including:

**Safety:** Roundabouts reduce crashes and fatalities due to slower speeds and no left turns.

**Improved traffic flow:** Congestion is alleviated through continuous traffic flow.

**Complex intersection solution:** Roundabouts are ideal for 5-legged, sharp intersection and other unusual intersections.

**Less conflict:** Roundabouts offer fewer points of conflict where crashes may occur.

**Easy maintenance:** Given the lack of traffic signals, roundabouts are easier to maintain and more energy efficient than signalled intersections.

(Source: MORPC)
Objective T3. Consider aesthetics and character of place in the design of all new roadways and redevelopment of existing roadways.

T 3.1 Assess potential street design improvements depending on their surrounding context. Utilize the Street Design Matrices to determine appropriate designs for new streets and the redevelopment of existing roadways.

T 3.2 Revise Street Design Standards. The City’s standard drawings and other regulations pertaining to street design should be reviewed and updated as appropriate to align with the street design recommendations of GroveCity2050.

T 3.3 Create streetscape design guidelines for public realm elements (landscaping, lighting, signs, etc.). Streetscape design standards have been created for the Town Center. Similar guidelines that address signs, lighting, landscaping and other possible characteristics should be created for major corridors such as US 62, Stringtown Road and SR 665.

T 3.4 Coordinate with the Ohio Department of Transportation (ODOT) on the installation of sounds walls or other noise-reducing measures along highways. Particularly when residential developments are adjacent to Interstates, Grove City should work with ODOT to install sounds walls, mounding, landscaping and/or other appropriate measures to reduce the impact on adjacent developments.

Objective T4. Ensure that new developments are connected into the existing transportation network.

T 4.1 Require street and trail connectivity between developments. Update the land development regulations to require that development plans include street and trail connections to adjacent development. At the edge of the City, stub streets should be included in subdivisions with the expectation that those streets will be connected to future development.

Objective T5. Expand public transportation options.

T 5.1 Continue to coordinate with the Central Ohio Transit Authority (COTA). Meet with COTA officials at least annually to identify opportunities to improve public transportation in the City. As needed, share significant development proposals to assess their design with regard to viability of transit.

T 5.2 Investigate a local “circulator” (bus or shuttle). A local circulator bus or shuttle would operate within Grove City to link major activity centers and employers not directly served by COTA.

“We understand 665 is a trucking corridor but with all the residential areas and more to come on and off 665, we believe something should be done to decrease the risk of accidents.”

Public Workshop Comment

Circulator Bus

COTA has partnered with local governments to meet the challenge of expanding “first-mile” and “last mile” service to certain activity centers. Two examples are in Groveport and New Albany.

GREAT (Groveport Rickenbacker Employee Access Transit) shuttle service connects employees traveling to the Rickenbacker area on COTA Line 81 to various businesses located throughout the industrial park. Shuttle service, operated by the City of Groveport and Village of Obetz, is free to customers.

SmartRide New Albany features five scheduled runs between Columbus and New Albany during the mornings and evenings with shuttles that run to and from businesses in the New Albany Business Park.

(Source: COTA)
Objective T6. Expand the sidewalk and bikeway networks to provide connectivity within Grove City and the region.

T 6.1 Create multi-use paths along at least one side of new roadways as indicated on the Street Network Map. While some streets may be appropriate for on-street bike facilities, many streets in Grove City require off-street paths. Where right-of-way limits multi-use paths to only one side of the street, the path should be kept on the same side to the greatest extent possible to avoid excessive crossings.

T 6.2 Update the Parks and Recreation Master Plan’s bikeways element. The Parks Plan contains the City’s official bikeways and trails planning map. It should be updated to reflect GroveCity2050 as indicated on the Bikeways Network and Multi-use Paths Map. The trail system connects neighborhoods to local parks and the regional trail system.

T 6.3 Establish partnerships with area jurisdictions and state agencies and organizations on bikeways and trails. Coordinate the extension of bikeways and trails into adjacent townships and municipalities by collaborating with Central Ohio Greenways, MORPC, Metroparks, Columbus, Jackson Township, Urbancrest and other entities. Collaborative efforts may enable special funding or cost-sharing opportunities.

T 6.4 Create bikeway/trail connections between Grove City and Downtown Columbus through the regional trail network. Extend Grove City’s bikeways along US 62 (3C), Gantz Road and Route 104/Scioto Trail to provide routes linking Grove City with Downtown Columbus. These routes could connect further to the Camp Chase Trail, which is part of the cross-state Ohio-to-Erie trail.

T 6.5 Create a bike/pedestrian bridge over I-71. As shown on the Bikeways Network and Multi-use Paths Map, a bridge across I-71 should be created to connect bikeways on Hoover and Holton Roads.

T 6.6 Require that bicycle parking facilities (bike racks or shelters) are included on new development plans where appropriate. Include requirements for bike parking facilities within the suggested update to the City’s zoning code.